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# Reliability of Steam Cars in A. C. A. Contest.

## Comparison Between the Performances of the Steam and Gasoline Cars in the 500-Mile Reliability Test New York to Boston and Return—Compiled from the Official Report.

ALTHOUGH it is now four months since the so-called 500-mile reliability contest was held, and two months since the contest committee published its report of the event, the data of public interest obtained through it still remain to some extent unexplained, and some of them, especially those relating to steam vehicles, have gained a new significance from the evidence of increasing popularity for a condenser equipment with this class of automobiles, furnished at the Garden Show. An analysis of the work done in the contest by 56 gasoline vehicles was given in the January 17 issue of this publication, and also an account of the tire troubles encountered by all the contestants, including those driving steam vehicles. In presenting now similar data relating to steam vehicles, the most obvious and most important fact which appears from the accompanying table by comparison with the tables referring to gasoline vehicles (THE AUTOMOBILE, January 17), is the remarkable freedom from functional disorders in steam vehicles, whether these are measured in the number of stops caused by them or the time required for remedying the defects.

Another deduction which is readily suggested by the comparison refers to the utter inadequacy of "reliability contests," as heretofore held, for measuring the relative merits of two radically different classes of automobiles by the same set of rules.

As will be remembered, the reliability of all the contesting cars was to be measured by a scale of points. The performance which was considered desirable was an equable progress at 14 miles per hour, from one control to the next, with a minimum of repairs and adjustments at the controls. The controls were the regular stopping places for lunch and sleep, at noon and evenings. For a performance complying with this requirement a maximum of points, 2,092, was allowed. Failures to comply fully with it were to be measured by deducting points from this total, the deductions to be as near as possible in proportion to the seriousness of the shortcomings. The main idea was that functional disorders in the mechanism of the automobiles should be penalized in proportion to the durations of the stops caused by them. An exception was allowed in the case of tire troubles, on the presumption that tire manufacturers, and not automobile manufacturers or automobile drivers, should be held responsible for them.

It was repeatedly proved during the contest, however, that tire failures were caused largely by a disproportion between the weight of cars and the dimensions of the tires used with them.

By exempting from penalty the stops made by steam cars for renewing their supplies of gasoline or water, the principle was recognized that only functional disorders should be penalized, and not those regular interruptions of travel which are inherent in the nature of the power mechanism and may be forseen before starting.

This was a concession to the natural limitations of the great majority of steam cars and was not offset by any concession to gasoline vehicles, or by the adoption of any method for rewarding their capabilities for stopless traveling, and the appearance in the contest of steam cars which required no allowance for gasoline or water stops indicated that the distinction was a compromise of doubtful expediency, more or less likely to retard the improvement of steam cars by veiling the inability of the ordinary steam car to compete on even terms with gasoline vehicles in the form of contest which had been selected. The rule resulted in the awarding of gold medals to eight steam cars out of nineteen, while only nine out of fifty-six gasoline cars received the same acknowledgment of merit.

It has since been generally acknowledged that a non-stop and low-speed contest is unsuited to bring the comparative merits of steam and gasoline motor cars to public notice, so long as a large percentage of automobilists are willing to accept the natural shortcomings of the non-condensing steam car in consideration of its simplicity and cheapness, and so long as another large percentage look to the gasoline car mostly on account of its capacity for sustaining high speed uninterruptedly for great distances.

In the official awards the steam cars necessarily receive a stamp of approval which could not be considered merited by those looking for a true non-stop performance, and when, on the other hand, the contest committee in the summary of its official report smothered the fact that the functional disorders of the steam cars—the unforseeable stops—were quite insignificant in comparison with those of the gasoline cars, those desirous of seeing the "reliability" of steam cars proclaimed, meaning their ability to do with regularity what was claimed for them, had reason for complaint. The summary was not wrong, of course, but it was misleading in presenting nothing showing the relative merits of the two classes of automobiles, and leaving those cars out of consideration which failed to obtain certificates, although in most instances they were identical in

pattern with other cars to which certificates were awarded.

The official summary to which reference is made is printed herewith:

## ANALYSIS OF STOPS.

"An analysis of the total number of stops from all causes due to the mechanism of the car (and including tire troubles and stops for water and gasoline) of the sixty-seven cars receiving certificates, is as follows:

GASOLINE CARS.

"49 cars, 6 of which had no stops, the remaining 43 having stops as follows:

| | |
|---|---|
| Ignition | 26 per cent. |
| Water circulation | 11 " " |
| Stalled motor | 10 " " |
| Tires | 10 " " |
| Valves | 10 " " |
| Accidental stops | 6 " " |
| Carbureter | 5 " " |
| Transmission gears | 4 " " |
| Springs | 2 " " |
| Gas connections | 2 " " |
| Out of gasoline | 2 " " |
| Lubrication | 2 " " |
| Wheel bearings | 2 " " |
| Chains | 2 " " |
| Clutch | 2 " " |
| Brakes | 1 " " |
| Broken piston | 1 " " |
| Crank shaft, Muffler, Steering gear | 2 " " |
| | 100 per cent. |

STEAM CARS.

"18 cars, 2 of which had no stops, the remaining 16 having stops as follows:

| | |
|---|---|
| Water and gasoline | 75 per cent. |
| Tires | 9 " " |
| Air pressure (all in one car) | 5 " " |
| Water connections | 3 " " |
| Lighting fires | 2 " " |
| Low steam | 1 " " |
| Water glass | 1 " " |
| Lubrication | 2 " " |
| Brakes, Chain, Gasoline connections | 2 " " |
| | 100 per cent. |

CAUSES OF WITHDRAWAL.

"Seven cars withdrew from the contest for the following reasons:

B-6 Foster; broken crank shaft.

B-14 Autocar; damaged gear shaft.

B-15 Ward-Leonard; jaw couplings between engine and speed gear broken; crank shaft bent.

C-50 Neftel; defective water circulation; hot engine.

A-54 DeDion-Bouton; broken steering gear.

B-69 Fredonia; damaged transmission gear.

A-74 Buffalo; broken connecting rod.

This summary hardly makes it clear to the public at large or even to automobilists that 56 gasoline cars had 202 involuntary stops due to functional disorder of their mechanism and consuming in all 3,989 minutes, while 19 steam cars had only 29 such unforeseeable stops consuming 477 minutes; much less than that, but for one luckless steam car which had 23 stops, consuming 365 minutes, the score would have stood 18 steam cars, 16 stops, 112 minutes.

For all who do not consider it lack of reliability in a steam car that it requres to be supplied with gasoline and water at about such intervals as stated by its maker, it must seem peculiar that the Automobile Club of America and its contest committee did not call attention to this disproportion in the relative reliability of the two classes when summarizing an event which the club itself had labeled a "500-Mile Reliability Contest," leaving it to the public to draw their own conclusions as to whether it would be preferable to have a steam car of high reliability (at 14 miles per hour), but comparatively short traveling radius, or a gasoline car, subject to many more puzzling troubles, but of large traveling radius and possessing other advantages which may appeal more to one person than to another.

By publishing a fair report of each contestant's performance the club furnished, however, the material from which the comparison between the two classes could be worked out, inspired to follow this noncommital course, perhaps, by the Italian proverb, "God gives us the nuts, but he does not crack them for us." From these reports the table given herewith has been compiled, but it has not been considered necessary in this table to specify the cause for each of the penalized stops, as these causes appear to be quite sporadic and point no other moral than the well-known one that the mechanism of a steam car should be frequently inspected, adjusted, cleaned and oiled, in order to preserve the integrity of its small parts and its piping.

For convenient comparison there is also here repeated the summary of stops of gasoline vehicles, first printed in the January 17 issue of THE AUTOMOBILE, p. 55.

by S. T. Davis, Jr., which weighed 3,030 pounds, and required 15 water fillings between controls, and the Stearns car, which required 23 such fillings, all the other non-condensing cars required water at about equal intervals, averaging about 10½ fillings for the whole trip. If it were possible to determine that the tanks were always nearly empty when supplies were taken on, and that they were also filled at all the controls, these figures would tend to show that the average non-condensing steam car has a water tank capacity sufficing for a run over average roads of about 22 miles, but considering the irregularity of the mileage intervals between water stations, this estimate evidently falls below their true capacity.

Having noted that Dr. Carman's vehicle was plainly ailing from many complaints when it was started in the contest, and for this reason should hardly be considered in the total showing of steam car reliability, we are immediately impressed by the proportion between stops for water and stops due to other causes.

Nineteen steam cars were obliged to stop for water 176 times between controls, consuming 1,305 minutes in having this want supplied, while 18 of these cars stopped only 16 times for mechanical troubles which were remedied in a total time of 112 minutes, or an average of about 6 minutes for each car on a 500-mile trip. The 56 gasoline cars had altogether only 229 stops from all causes, but their duration amounted to 4,960 minutes. For 18 or 19 gasoline cars this would make about 76 stops, wasting 1,650 minutes, or, in other words, the loss of time due to unreliable mechanism of gasoline cars is only slightly in excess of that due to the need of water supplies in the non-condensing steam cars, and causes not nearly so many stops—76 against 176. In this showing the argument for condenser equipment is clearly indicated, especially when taken in conjunction with the contest score of the White cars, which were fitted with condensers and suffered no mechanical mishaps on account of this mechanism.

On the other hand it may of course be argued that in ordinary travel the stops necessary for replenishing water and gasoline tanks may usually be made to coincide with the stops which the travelers would desire to make for other reasons, and need cause no anxiety, while the stops due to

## SUMMARY OF GASOLINE VEHICLE STOPS.

| Causes of Stops. | No. of Cars Affected. | No. of Stops. | Stops in Minutes. | Avoidability. | Frequency. | Average Duration. |
|---|---|---|---|---|---|---|
| Tires | 13 | 27 | 971½ | 77% | 12% | 36 minutes |
| Ignition, Carburation, Cyl. Lubrication | 31 | 103 | 561¼ | 44½% | 45% | 5½ " |
| Valves | 10 | 15 | 510¾ | 82% | 7% | 34 " |
| Cooling System | 16 (1 Out) | 27 | 693¼ | 71½% | 12% | More than 25½ " |
| Clutches | 6 | 7 | 214 | 89% | 3% | 30 " |
| Transmission Gear | 8 (2 Out) | 10 | 373½ | 86% | 4% | More than 37½ " |
| Operation and Accident | 17 | 23 | 270¾ | 70% | 10% | 12 " |
| Miscellaneous Causes | 12 (3 Out) | 17 | 1365¾ | 78½% | 7% | More than 80 " |
| Totals | | 229 | 4960¼ | | 100 | |

What strikes one first as remarkable in the table is the fact that one car, B 73, had more stops due to disordered mechanism than all the other eighteen cars combined, and consumed more than three times as many minutes in having the defects remedied as were required for all the other cars. It was the only one which had troubles with the air pressure, and it apparently consumed a great deal of gasoline by reason of its defective operation, since it was found necessary to supply it with water 21 times and gasoline 3 times (besides at the controls), while no other car of the same tank capacity required extra gasoline supply, and there is a notable regularity in the frequency of water supply for the other cars. With the exception of the special locomobile driven

# Electric Ignition Generators.

## Points Involved in their Construction and Operation for the Information of Owners and Drivers of Gasoline Cars.

BY HERBERT L. TOWLE.

The ignition current, being a thing unobtrusive (except when it is not there) and not often measured, is seldom reckoned with in computing the expense of running an automobile. That it deserves more prominence than it usually receives, however, may be inferred from the fact that automobile users have been known to spend as much money on batteries in the course of a season as on gasoline. Although this is an abnormal case, the fact remains that the battery is a chemical apparatus, and requires for its proper handling some knowledge of chemistry as well as of electricity. For this reason, if for no other, there seems to be room for electrical generators substituting mechanical for chemical characteristics, and therefore comprehensible to any one who understands his ignition circuits and the mechanism of his engine. In addition, it seems reasonable to suppose that an economy in total cost can be effected at the same time, given a reasonably substantial generator, since the power and fuel required to run it will be but a small fraction of that consumed by the engine. That this has in fact been accomplished is attested by the large and increasing number of magneto generators and ignition dynamos in the past year or two. It is the purpose of this article to set forth as concisely as possible the electrical and electro-mechanical features of this class of apparatus, in the hope of covering all such points as the automobilist needs to know. To this end the magneto-electric machine, as the simplest, will first be considered.

Every one who has dabbled in electrical physics, in school or out of it, has made the old experiment of sprinkling iron filings on a sheet of paper laid on a magnet, and has observed the symmetrical lines into which these filings arrange themselves when the paper is gently tapped. These lines of iron filings afford a concrete representation of the magnetic "lines of force" which are supposed to radiate from every magnetic pole and to connect poles of opposite polarity. For convenience in analysis, these lines are supposed to emerge from the north pole and to enter the south pole, as is indicated by the arrow heads in Fig. 1.

These lines of force follow paths determined by the magnetic character of their surroundings. They pass most readily through soft iron, and if a magnet have its poles connected by a thick piece of soft iron, practically all the lines of force of that magnet will be diverted from the air through the iron. There is no insulator of magnetism, but sometimes an approximately similar effect may be produced by the use of a soft iron screen which will absorb into itself all the free lines of force in its neighborhood. The number of lines of force which a given magnet will have depends on the form of the "magnetic circuit." The greater the air gap between the poles, the more difficult will it be for the magnetism to strike through the air from pole to pole, and the fewer will be these lines of force, since they are really the measure of the magnet's strength. A short,

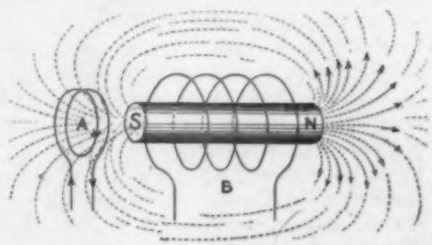



FIG. 1.

thick horseshoe magnet, with a piece of soft iron across its poles, will have a great magnetic intensity; while the ideal case is that of a closed ring, magnetized by a surrounding wire coil and with neither air gap nor poles. As every designer of electrical machinery aims to get the greatest possible magnetic flux from his materials, every endeavor is used to reduce the air

## STEAM VEHICLES IN 500-MILE RELIABILITY TEST.

### Numbers and Durations of Stops Between Controls—Replacements at the Garages.

| Class. | Manufacture. | Driver. | Tires. | | Water. | | Gasoline. | | All Other Causes. | | | Replacements at Garages. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stops. | Min. | Stops. | Min. | Stops. | Min. | Stops. | Min. | Cause. | |
| B 5 | Prescott | H. M. Wells | ..... | ..... | 8 | 29 | ..... | ..... | ..... | ..... | ..... | none |
| B 6 | Foster | F. L. Dodson | ..... | ..... | 11 | 78 | ..... | ..... | 4 | 8 | various *) | 1 pump arm, 1 nipple, 1 broken water pump, repaired. |
| B 7 | Lane | J. T. Roosa | ..... | ..... | 10 | 28 | 4 | **) | ..... | ..... | ..... | none |
| B 8 | " | A. K. Raymond | ..... | ..... | 11 | 64 | ..... | ..... | 2 | 7 | lost valve stem; pipe union. | 1 tire |
| B24 | White | P. H. Deming | 1 | 21½ | 1 | 2½ | ..... | ..... | ..... | ..... | ..... | none |
| B25 | " | W. T. White | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | none |
| B26 | " | Geo. S. Waite | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | none |
| B27 | " | A. J. Scalfe | ..... | ..... | 1 | 8 | ..... | ..... | ..... | ..... | ..... | 1 tire |
| B28 | " | R. M. Hughes | 3 | 110 | ..... | ..... | ..... | ..... | 1 | 4 | low steam | 1 inner tube; 1 air pump plunger |
| B33 | Grout | C. B. Grout | ..... | ..... | 9 | 57 | ..... | ..... | ..... | ..... | ..... | 1 water glass |
| C34 | Locomobile | S. T. Davis, Jr. | 4 | 238 | 15 | 92 | ..... | ..... | 1 | 70 | valve in water pump | 1 water glass |
| B35 | " | R. S. Davis | 1 | 4 | 11 | 34 | 1 | 5 | 1 | ½ | fire out | 1 connecting rod; 2 tires |
| B36 | " | R. M Page | 1 | 5 | 12 | 302 | 1 | 5 | ..... | ..... | ..... | 1 pipe and union; 1 tire |
| B51 | Stearns | W. A. Sweet | ..... | ..... | 23 | 99 | ..... | ..... | †) | ..... | ..... | 1 nipple; 1 bolt; 1 water glass |
| B60 | Grout | W. J. Gould | ..... | ..... | 12 | 95 | ..... | ..... | 1 | 5 | broken water glass | 4 water glasses |
| B61 | " | C. A. Grout | ..... | ..... | 10 | 70 | ..... | ..... | 2 | 9½ | low steam ; water glass | 1 water glass |
| B70 | Foster | F. J. Holley | 7 | 52 | 10 | 73 | ..... | ..... | ..... | ..... | ..... | 1 tire |
| B73 | " | Dr. M. A. Carman | 1 | 10 | 21 | 164 | 3 | 27 | 23 | 365 | various | none |
| B80 | " | Park Densmore | 1 | 56 | 11 | 110 | ..... | ..... | 4 | 8 | fire; lost pin; lock nut | none |
| | | Totals | 19 | 496½ | 176 | 1305 | 9 | 37 | 39 | 477 | | |

*) In addition, broke crank shaft and left contest. **) Time figured under water stops. †) No stops, but was penalized for too early arrival at many controls.

defective functioning of gasoline car mechanism may come at any moment and at any place, and may cause considerable worry on account of the uncertainty in regard to the time and the means required for continuing the travel.

A lesson for steam car owners is found in the number of stops due to tires. The 19 cars had 19 tire stops calling for repair work lasting 496 minutes. The 56 gasoline cars had only 27 stops due to tires, and were set going again in 971 minutes. Proportionately the gasoline cars had therefore only half as many tire stops as the steam cars, but their average duration was 36 minutes, while the duration of the tire stops with steam cars averaged only 26 minutes. The reason is readily seen in the much lighter patterns of tires which it has been customary to use on steam cars. A flagrant example was furnished on the special Locomobile racing car C 34, which was equipped with tires weighing only 10 pounds each, though the weight of the car was 3,030 pounds. It had 4 tire failures. The Foster car, B 70, which had 7 tire stops, and weighed 1,500 pounds, was fitted with 2½-inch tires, which must also have been rather light. But the White car, B 28, which had three tire stops (from one puncture), was equipped with 16¼ pound tires supporting a car weighing 1,690 pounds.

gaps and other resistances in the magnetic circuit.

Although by implication we have spoken thus far mainly of permanent magnets, the same magnetic principles hold true of electro-magnets, which consist of cores of soft iron or steel excited into temporary magnetism by the passage of a current of electricity through an insulated coil of wire around them. It is found that the magnetic intensity thus obtained is much in excess of that possible with hard steel permanent magnets. For this reason, in all but the simplest electrical generators, electro-magnets are used for the "fields" instead of permanent magnets, in order to reduce the bulk and first cost of the machine. This will be referred to later, but it is sufficient here to remark that there is a definite relation between the direction of this exciting current and the polarity of the soft iron core. If, as one looks at the end of a magnet pole, the direction of the current in the coil surrounding it is to the right or clock-wise, it will be the south pole. If the currents be circulating in the opposite direction, the pole looked at will be north. We are now ready to consider the inducing of a current in a wire coil moved about in a magnetic field. Fig. 1 shows the principle. Here *A* is a coil of wire presented to one pole of a magnet. As the drawing shows, a certain number of lines of force pass through this coil, which, by the way, is supposed to have its terminals electrically connected, forming a circuit closed, but without a battery or other source of electricity. If this coil *A* be quickly removed from the vicinity of the pole, thus diminishing the number of lines of force passing through it, a momentary current will be set up in the coils. This current will last as long as the coil is in motion. Its intensity or voltage will be proportional to the rapidity with which the lines of force included in the coil are reduced in number, or to the *rate of change* in the lines of force, and its direction will be the same as that of the current in the exciting coil *B* of the magnet. If coil *A*, instead of being withdrawn from the pole, is made to approach it, a current will be induced in it in precisely the same manner, but its direction will be opposite to that in the coil *B*. If, instead of moving coil *A* bodily, the current in coil *B* be changed or broken, the lines of force passing through *A* will suffer a corresponding change, and a current in one or the other direction will be induced in *A* as before. If instead of an electro-magnet a permanent magnet be used, the coil *B* and its current will now be imaginary instead of real, but the current in *A* and its direction will be the same as before.

To apply this principle of induction mechanically, it is usually necessary to give the coil in which current is to be induced a continuous motion of rotation. The simplest and most obvious way to do this is to rotate it about an axis of its own in a magnetic field between two poles. This is the arrangement shown in Figs. 2 and 3, which show diagramatically a single coil of an armature rotated between the north and south poles of a magneto, or generator having permanent field magnets. It is obvious that, whereas in Fig. 2 practically all the lines of force between the poles must

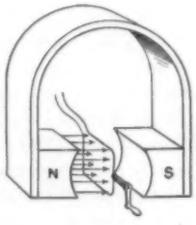



FIG. 2.

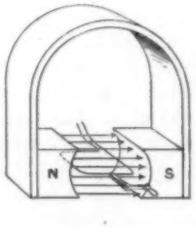



FIG. 3.

pass through the coil, when the latter lies parallel to these lines, as in Fig. 3, no lines pass through it. The direction and varying intensity of the currents thus induced in the coil may most conveniently be studied from the enlarged diagram, Fig. 4. Here are the two poles N and S, with the direction of their real or imaginary exciting currents shown by the loops *A B*. When coil *O B C D A O* rotates between the poles on its axis *O O*$^1$ a moment's examination will show that, although the coil includes the greatest number of lines of force when in the vertical plane *M N*, a given arc of motion *M A*, when the coil is nearly vertical, reduces the number of these included lines very much less than the same arc of motion *X A*$^1$ when the coil is nearly horizontal. In fact, during the instant when the coil is vertical its motion produces no change at all in the number of these lines, and the induced current at that instant is *nil*. *Per contra*, it is at its maximum when the coil is in the plane *X Y*. This varying intensity of the induced current from zero to maximum may be expressed mathematically by pointing out that the number of included lines of force at any moment is measured by the cosine of angle *A O M*. As the *rate of change* in the value of the cosine, when the value of the angle is uniformly increased, is measured at any instant by the sine of that same angle, it results that the current follows what is known as the "sine curve." The character of this curve, beginning at the zero point with the coil in the neutral plane *M N*, is shown in Fig. 5.

It remains to point out the reason for the reversal in the direction of the current, indicated by the alternations of the curve from positive to negative. This may best be investigated by reference to Fig. 4. As there shown, coil *A B C D* is supposed to be rotating in a counter-clock-wise direction, with element *A B* moving toward pole *N*. This motion reduces the included lines of force, and the induced current is consequently in the same direction as the real or imaginary current around poles *N* and *S*. This direction is indicated by the arrow heads. When the coil has got past the plane *X Y* the included lines of force are increasing, but at the same time their direction relatively to the coil has been reversed; not, of course, that the lines themselves

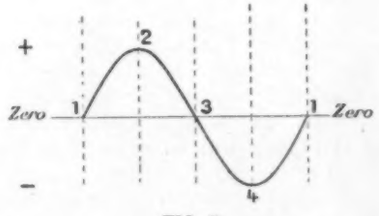



FIG. 5.

have reversed their direction, but that the other face, so to call it, of the coil is now presented to them. The direction of the induced current is now opposite to that of the currents exciting the fields, but as the coil also is reversed, the direction of the current in the wire of the coil remains as before. When the coil reaches the vertical plane the included lines of force begin to diminish without reversal of the coil's position, and consequently the direction of the current in the wires of the coil is reversed.

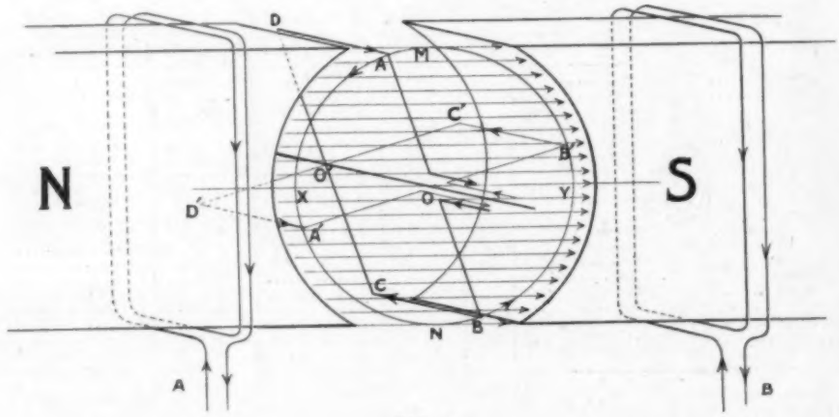



FIG. 4.

The armatures of the simplest ignition machines are a direct development of the arrangement shown in Fig. 4, the armature having but one coil consisting of a number of turns of insulated wire wound upon a

core and having the two free ends brought out to a commutator on the shaft, from which the current is drawn by oppositely disposed brushes for use in the external circuit. The core on which these wires are wound is commonly a soft iron barrel, in which the wires are imbedded in opposite grooves, a section of the core resembling the letter H. The purpose of this core is two-fold. In the first place, it reduces the resistance of the magnetic circuit by providing an easy path for the lines of force. In the second place, as the reader will see from Figs. 6 and 7, it increases

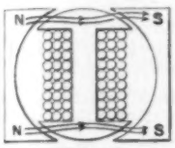


FIG. 6.

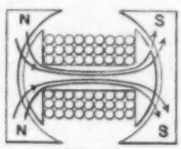
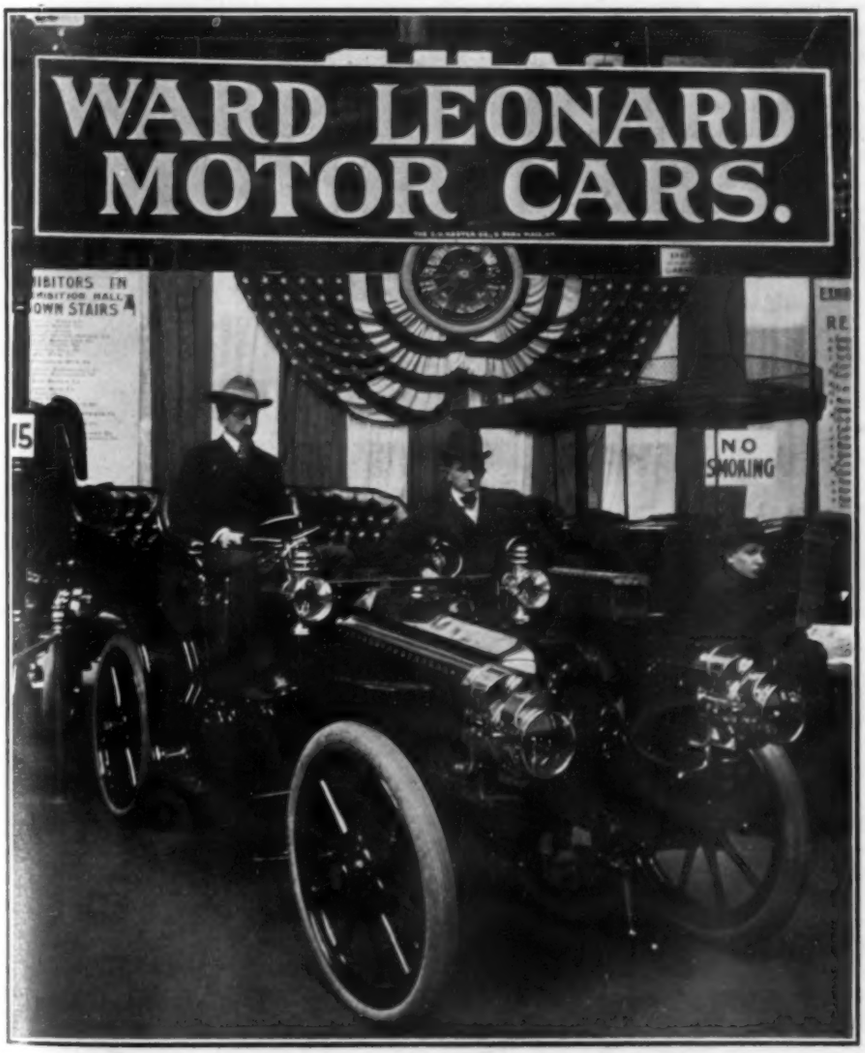


FIG. 7.

somewhat the rapidity with which the lines of force enter and leave the coil, and causes them, when the coil is in the position shown in Fig. 6, corresponding to the plane *X Y*, to desert the coil more completely. This type of armature, simple though it is, is entirely practical, its chief drawback being that it is obviously necessary to maintain the armature in exact relation, by gearing or otherwise, to the time of ignition. When the ignition time is varied, as it is in most automobile engines, special provision is necessary to insure that the break shall still occur when the armature is giving its maximum current. It will be obvious also that the fluctuating character of the current is an obstacle to the use of coils with magnetic vibrators, and as a matter of fact, this type of machine is used chiefly with a single make and break, and to a greater extent with the contact spark than with the jump spark system.

To avoid these restrictions, the armature is frequently made, like the armatures of nearly all dynamos used for other purposes, with multiple coil winding. The soft iron core is retained, though now made circular in section, and its surface is covered with a number of small coils instead of one large one. These coils are connected in series, the outer end of one to the inner end of the next, forming a closed circle, and each coil has its own segment in the commutator. To that the short-circuited coils are generating



WARD LEONARD "RENAULT" TYPE CAR AT THE GARDEN SHOW.

avoid "sparking" at the brushes, caused by the momentary short-circuiting of a coil when the brush passes from one segment to the next, the brushes are located as nearly as practicable in the neutral plane *M N*, so no current of their own.

To produce a good ignition spark requires a certain minimum expenditure of energy, whose amount will depend on the particular characteristics of the coil and ignition apparatus used. To use a materially more powerful current is liable, particularly with the jump spark system, to cause trouble either by damaging the coils or by breaking down the insulation of the outside wires or the plug. As the voltage of an electric generator, and consequently the current delivered, depend on the strength of the field and the speed of the armature, it is evident that to drive an ignition dynamo by belt or gears at a speed proportional to that of the engine introduces a rather awkward problem. Current for starting must be had from batteries, and if the engine speed becomes too high there is danger of burning out the coils or doing other damage. This is particularly the case with self-exciting dynamos, since the increasing current in the armature, as the speed rises, intensifies the magnetism of the fields, and this in turn excites the amature still more powerfully. This difficulty is best met by designing the machine so that the field magnets will become "saturated," or excited to practically their full capacity, at a comparatively low armature speed. From that point an increase of current has but little effect on the field, though, of course, this does not prevent the armature current from increasing proportionally to the increase of speed. The only safe plan is to design all parts of the ignition apparatus with an ample margin of safety.

To avoid the difficulties just indicated, two or three American ignition dynamos are driven by belt or friction from the flywheel, with a centrifugal governor interposed in such a manner as to disconnect momentarily the drive when the speed of the armature exceeds the desired limit. This makes it possible to speed the armature well up under a low engine speed without the penalty of an excessive armature speed under normal conditions. Another machine lately put on the market, the Goodson, gives the armature a momentary impulse by means of a spring, the spring being compressed and released once for each ignition. As the current induced is independent of the engine speed, this should make it possible to design a machine much lighter than the usual forms.

Among the foreign ignition generators, the most widely used is the Simms-Bosch magneto. This machine has permanent field magnets and an "H" armature with a single coil. The armature, instead of rotating, is stationary, its position being that of Fig. 6, with no lines of force normally passing through the coil. Induction is effected by caus-

ing the lines of force themselves to shift their direction, by means of a screen of soft iron which is moved between the armature and the pole pieces. This screen, which is diagrammatically shown at *A*, in Fig. 8, is so shaped as to deflect the lines of force alternately through the body of the armature core and across the armature poles. The way this is done is clearly

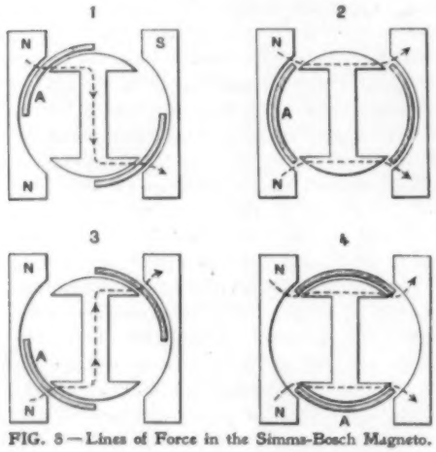



FIG. 8—Lines of Force in the Simms-Bosch Magneto.

shown in Fig. 8, which shows the screen in four positions during a half rotation. During this time the induced current reverses twice, or double as rapidly as it would if the armature itself were rotated at the same speed. The screen, of course, is driven by gear or sprocket in a fixed relation to the speed of the engine, because the spark must occur when it is in the position (2) or (4). To advance the timing of the spark, the driving gear or sprocket, is mounted on a spiral feather, and shifted along its shaft.

This magneto is frequently operated by oscillating instead of rotating the screen, by means of a crankpin and link connection from the cam shaft. It is used only with make-and-break sparkers, and by reason of the rapidity with which the lines of force change their direction, it is very efficient, the weight of the whole apparatus being only about 10 pounds.

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The State Goods Roads Convention, recently held at Little Rock, Arkansas, proved to be a large and most enthusiastic gathering. The questions of national and State aid in road building were fully discussed, and the State Legislature was petitioned to enact a law levying a tax of two mills per dollar of all taxable property to form a fund for road building. The Brownlow bill was also discussed and warmly indorsed.

On February 3 Mayor Low vetoed the ordinance recently passed by the Board of Aldermen under which a ten-year contract would be made with individuals for sprinkling the streets. It is hoped by motorists and other users of the city streets that this will lead to the city establishing its own sprinkling plant.

# A Discussion of the Brownlow Bill for Federal Aid in Road Building.

BY J. B. KILLEBREW.

There is no questioning the fact that the subject of road building is engaging the attention of the people of the United States to a greater extent than ever before in the history of the country. Not only is the subject discussed in every county, township and civil district, but the Legislatures of the several States are beginning to listen to the coming storm of public applause or public indignation by devising methods to improve the roads. But by far the most important, because the most comprehensive movement inaugurated, is that of the bill presented to Congress by the Hon. W. P. Brownlow, of Tennessee. In its scope this bill provides for national aid in road improvement to every political division or subdivision of the country. Section 12 of the bill provides "that one-half of the expense of the construction shall be paid by the Treasurer of the United States upon the warrant of the Comptroller, issued upon the requisition of the director of said bureau, out of any specific appropriations made to carry out the provisions of this act, and one-half of the expense thereof shall be paid by the State or political subdivision thereof making application for the co-operation provided for, provided that nothing herein shall be construed to prevent the State or political subdivision thereof from distributing the said half so that the State may pay a portion, the county a portion, and the owners of the land abutting upon said road another portion. And provided further, that no money be advanced by the United States in payment of its portion of the cost of construction as provided for, except as the work of actual construction progresses, and in no case shall the payment or payments made thus prior to the completion of the work be in excess of 80 per centum of the value of the work performed, but in all cases 20 per centum must be held until the completion of the work according to the plans and specifications and to the satisfaction of the director of said bureau."

This is a wise provision and will put every community upon its mettle. Those that are imbued with the spirit of progress and improvement will not hesitate to avail themselves of this assistance in building good roads. The passage of this bill will be a distinctive and era-making event in the legislation of the country. To one who properly considers all the benefits that will accrue to the nation and to all its citizens by the passage of this bill, it must be conceded that no other legislation has ever been fraught with so much good for the people and with such grand possibilities. Say what we please about the influence of public schools, the press, the pulpit, the platform and other institutions that mark the civilized progress of mankind, yet all these are more or less dependent upon the facilities of intercourse between the people. In fact it is an undeniable truth that civilization means labor in some form and labor is the ability to move things from place to place and its efficiency depends upon the ease with which they are moved.

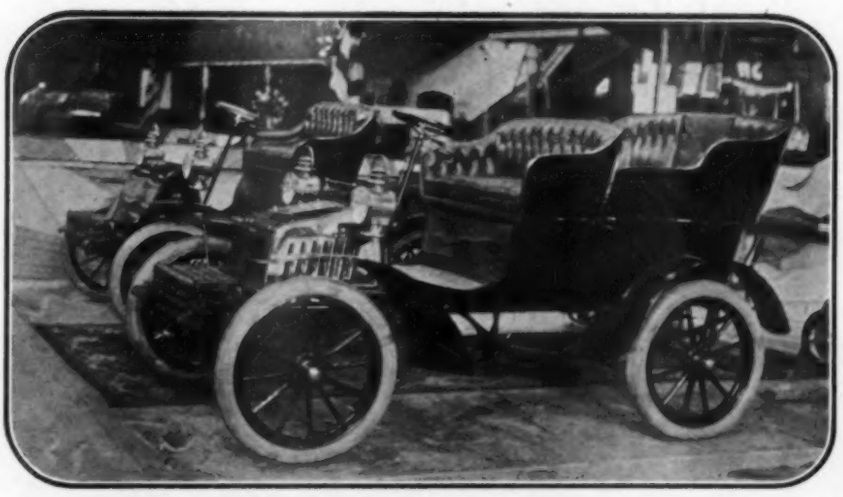
No nation has ever yet achieved permanent renown without good roads, or ever built them and regretted it afterwards. No community in possession of good roads would be willing to surrender them upon the repayment of their cost and maintenance. Of all the expenditures made by aggregated bodies or by government agencies, while it may not be the least felt, it produces the greatest good and the greatest satisfaction to the greatest number. Everybody uses good roads; the millionaire and the beggar, the black and the white, the lame and the blind, women and children, all enjoy and participate in the advantages and blessings of good roads. They are the morning star of progress; they are the fountain heads of trade and commerce; they are the avenues over which pass the main agencies for the dissemination of knowledge and the increase of intelligence, as well as the enjoyments of social intercourse in rural life. They provide the means for the performance of public duty; of reaching local markets or shipping points on the railways. They serve more country people in the aggregate than the railroads themselves.

This bill of Mr. Brownlow's is most timely. The rapid extension of the rural free delivery system now covering 300,000 square miles and destined in the near future to be extended to the 40,000,000 people living in the rural districts, make good roads a necessity. No other highly civilized nation on earth has so many bad roads as the United States. England, France, Germany, Spain, Italy all have good roads.

This government belongs to the people. They instituted it for their own welfare. They are the rulers. Congress is but one of the agencies they have created to provide for their wants and to execute their will. There is no constitutional barrier to the building of roads. The same clause in the Constitution that authorizes the establishment of post offices authorizes the establishment of post roads. These two Constitutional bestowments are coordinate branches created for the accomplishment of the same great end, that is, the convenience and happiness of the people.

But aside from the necessity of building

good highways for the better distribution of the mails through rural districts, it should be borne in mind that the agricultural classes, while doing more to sustain the credit of the government and the financial strength of its people than all other classes combined, have had the smallest appropriations made for their immediate benefit. The urban population have long been provided, at the expense of the government, with messengers for the delivery of mail. The shipping interests have had the harbors and rivers improved to expedite their business. The cities have been provided with post office buildings, the architectural beauty and cost of which surpass those of any other nation. Railroads have made use of the credit of the government. Iron masters have depended upon the government to construct great locks and dams for facilitating the assembling of the materials at cheap rates for making iron. The tariff laws have been shaped to benefit the manufacturers. No sane man objects to the majority of such appropriations. They are needed to foster and increase the commerce of the nation. But are they more important to the great mass of citizens than good roads through the country? Such roads cheapen food and clothing, extend trade, make many commodities valuable that are valueless without them; save time and indeed improve the opportunities of every citizen, whether he lives in the town or country or is a sailor on the wide ocean. In short, through government aid in the establishment of good roads every phase and every feature of business, social and educational life would be immeasurably advanced.



STAND OF THE ELMORE MFG. CO. AT THE CLEVELAND SHOW.

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The Technical Committee of the Automobile Club of France has perfected the rules for a competitive trial of mufflers for explosion motors which will take place early next month. The trials will take place at the laboratory of the club, in Paris, where a stationary motor will be used. This motor has one cylinder, 160 by 140 millimeters, and is cleared of gas 400 to 500 times per minute. The mufflers will be judged according to their silent qualities, absence of back pressure, weight, odor, suppression of vapor and simplicity and economy of construction.

The administration of the province of Chieti, Italy, has decided to establish an automobile omnibus service between Chieti and Teramo, 104 kilometers, and Chieti and Lanciano, about 53 kilometers.

A special exhibition of industrial alcohol will be one of the features of the Exposition of Mechanical Locomotion at Brussels this month.

The exports of automobiles from New York in the week ending February 6 amount to $14,572.

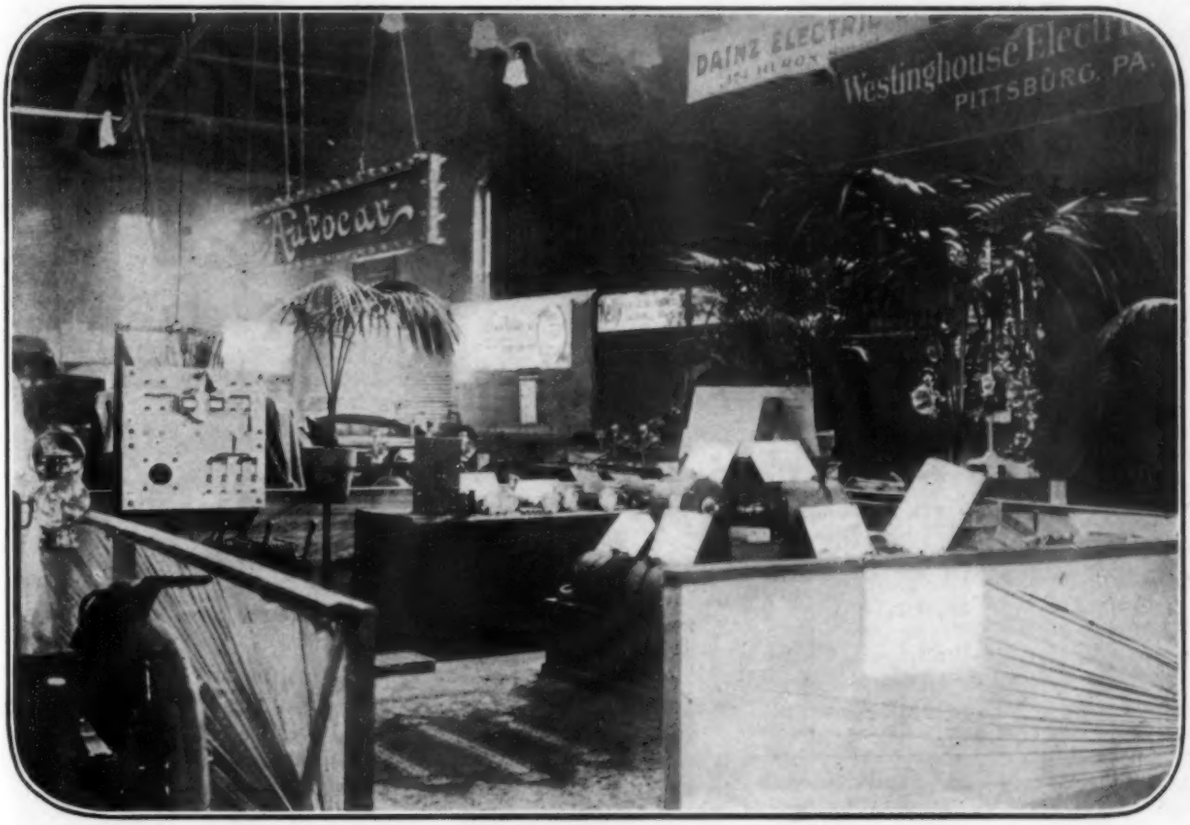



EXHIBIT OF THE WESTINGHOUSE ELECTRIC AND MANFG. CO. AT THE CLEVELAND AUTO SHOW.

# Riker Gasoline Locomobiles.

With a view to meeting the desire of all new converts to automobilism who wish to get a good general idea of the power system in any car which they may contemplate to purchase—and to have this knowledge before they approach the seller—the Locomobile Company has taken good care that the drawings showing its new gasoline cars, designed by A. L. Riker, may be used, even by those who are entirely ignorant of gasoline car construction, as a means for getting the required information without asking questions or depending upon offhand answers by the affable but not always omniscient salesman. It is this feature of plain, elementary clearness, rather than any startling innovations in the principles of construction, which lends interest to these drawings as herewith reproduced. Any novice can study them with profit, and those farther advanced will not fail to notice those departures from ordinary practice which the designer has embodied in these machines, and which are mostly in the nature of refinements looking toward simplicity in production, operation and repairs, as well as additional strength of frame and minor improvements in lubrication, carburation and ignition. Refinements which have only remote influence on the reliability of the machines in general service are not incorporated, however. It is found, for example, that there are no ball or roller bearings in the construction, but the plain bearings are finished by hand; aluminum castings, whose main advantage lies in weight reduction, are used only where strength is not required.

All the machinery is bolted on a rectangular frame of channel steel, C shaped on the middle portion, but tapering to both ends by planing off the upper flange and part of the vertical web on the bias. A trussed effect similar to that of the pressed steel frame is thereby obtained. This frame is supported on the axles by long semi-elliptic springs. The driver's place is separated from the engine by a wooden dashboard, which carries the spark coils, a gauge showing water circulation in the cooling system, a kerosene pump used for cleaning the engine valves and a switch for throwing the electric current for the ignition on or off by hand, but which is thrown off automatically by the ignition dynamo when the car has been started, and the dynamo takes care of the spark.

The only thing which projects above the frame back of the steering column is the gasoline tank, and but for this exception any style of body may be fitted to the rear portion of this chassis.

The engine consists of four 4 by 5 inch cylinders, and is designed to run at 900 revolutions a minute. Under the throttle it may be forced down to 300 revolutions, and the accelerator will speed it up to 2,000 revolutions, the load and resistance permitting. No special design features

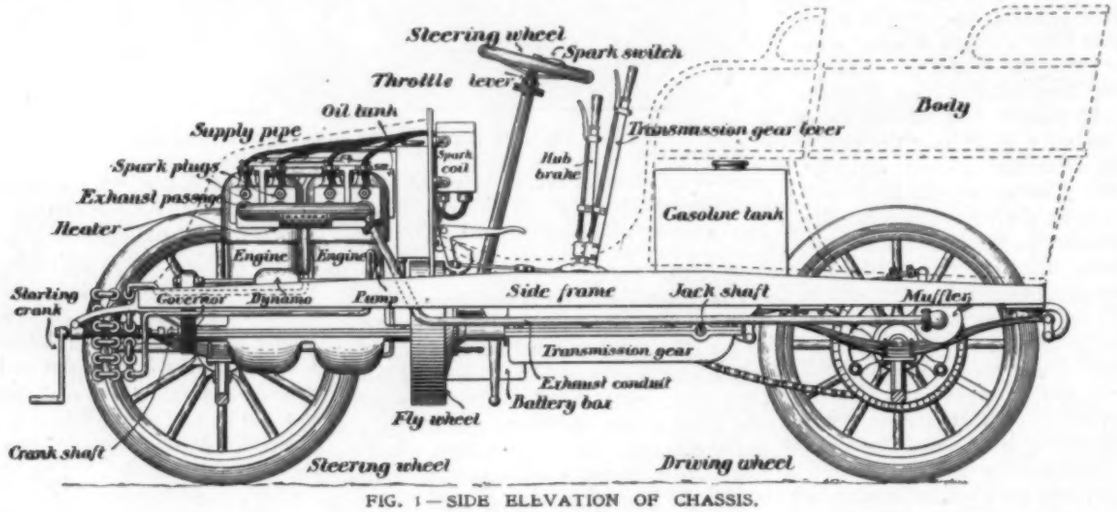



FIG. 1—SIDE ELEVATION OF CHASSIS.

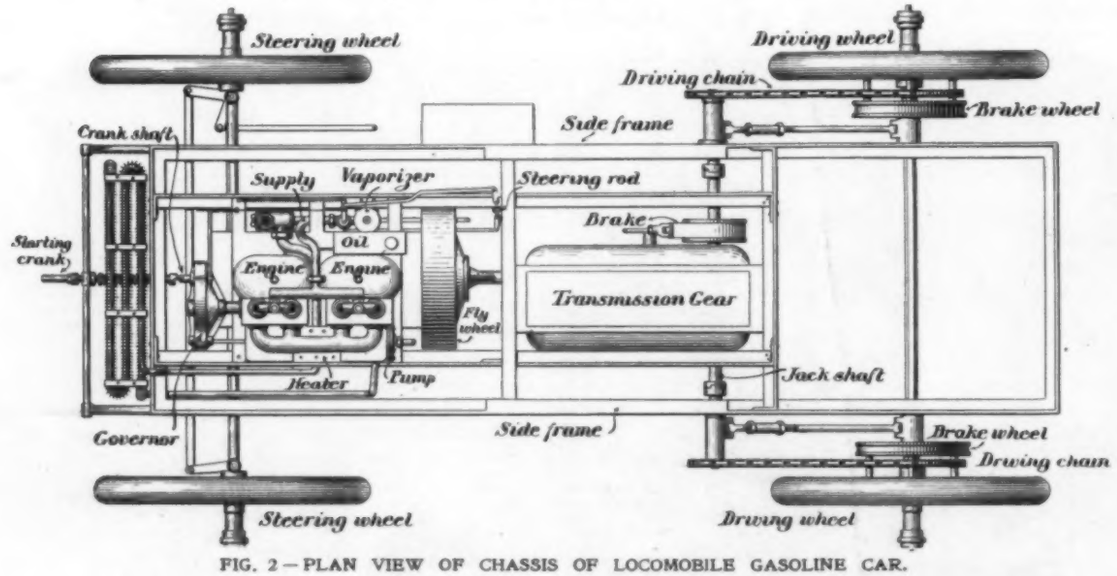



FIG. 2—PLAN VIEW OF CHASSIS OF LOCOMOBILE GASOLINE CAR.

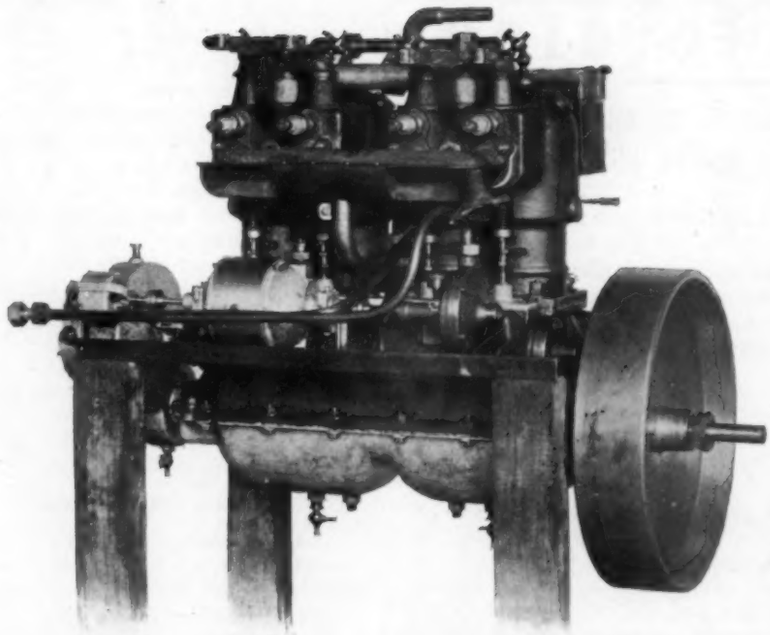


FIG. 5—LEFT SIDE AND REAR VIEW RIKER FOUR CYLINDER MOTOR.

are claimed, however, for the throttle (which acts on the intake), the vaporizer or the governor. After the machine has been started the vaporizer is supplied with hot air from around the exhaust pipe as in most modern automobiles.

The cylinders are cast in pairs with their water jackets on and with a projecting valve chamber entered from above by the inlet valve and from below by the exhaust valve. Between the valves the spark plug enters from the side, which is the left side

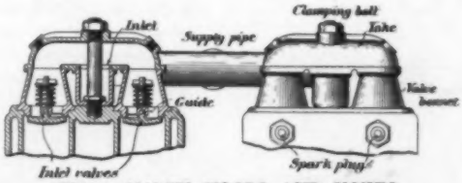



FIG. 4—VALVE HOODS AND YOKES.

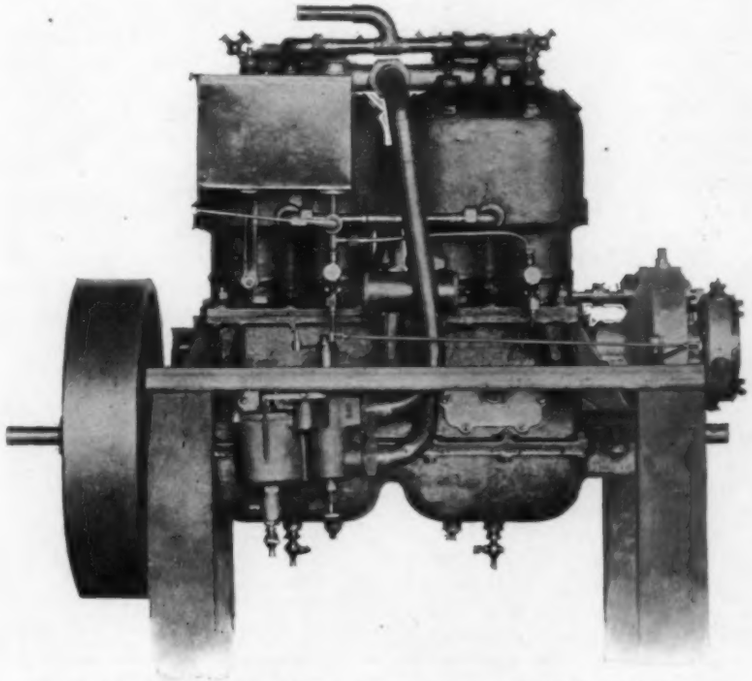


FIG. 5—RIGHT SIDE VIEW RIKER FOUR CYLINDER MOTOR.

of the vehicle. The yoke system has been adopted to facilitate removal and replacement of the valves, as shown in Figs. 3, 4 and 5. Mr. Riker's yoke is hollow and held in place by a central bolt and nut, and both yokes may thus be removed, disclosing all four inlet valves, by the loosening of two nuts. The gas inlet pipes from the carbureter connect with the lower portions of the removable yokes.

The exhaust valves are opposite the inlet valves, and their removal has been made easy by casting a lug on the cylinder wall which serves as a fulcrum for a forked tool used for unfastening the exhaust valve spring.

A standpipe regulates the height of cylinder oil in the crank case when first filled, and the consumption of oil is compensated for by an automatic feed from an oil reservoir placed close to the cylinders, where the heat radiation will keep

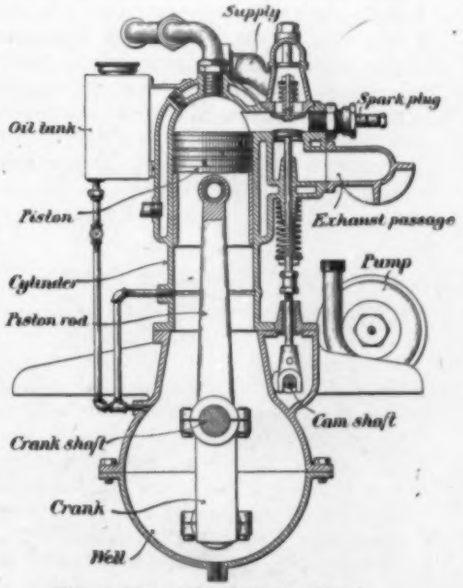



FIG. 3—Vertical Section Engine Cylinder.

it at a uniform viscosity, so as to make the feed regular. Presumably an oil of rather high viscosity is used to avoid the premature ignition sometimes occurring when thin oil with low flashing point is employed. The oil feed operates only when the spark switch is on the lubricator valve, being opened and closed in conjunction with the switch without special attention. By this arrangement the splash lubrication is kept uniform.

In the transmission gearing it is notable that the gear casing incloses the differential gear on the counter shaft (or jack shaft, as it is marked in Figs. 1 and 2), as the sliding gear. The latter is arranged to give direct driving, from cone clutch to the bevel gear on the differential, in accordance with modern practice. Gear changes are effected by a side hand lever which is locked, however, until the pedal releasing the cone clutch is depressed. The same pedal, by further depression, operates a band brake on the differential

shaft. Emergency brakes on the rear wheel hubs are operated by a side hand lever and are also of the band pattern. The bands are lined with wood and act on brass pulleys.

The cooling system is operated by gravity and thermic action, assisted by a centrifugal pump. The water tank holds seven gallons and occupies a high position between the dash and the engine, as seen in Fig. 1. If the centrifugal pump should get out of order the open area around its vanes will still permit the water to circulate by natural tendency of cold and hot water to intermix. Radiating coils are of the customary flanged variety and located in front. The pressure gauge on the dash notifies the driver if the pressure exerted by the centrifugal pump is decreasing. The shaft which drives the pump also drives an ignition dynamo which provides the spark for the engine after it reaches a certain speed. Until that speed is reached the spark is furnished by a storage battery of four cells. The switch dial on the dash shows which is acting. The heavily insulated electric wires are connected to the plugs by chains, which arrangement prevents snapping of wires. The ignition control is automatic except at the start, but the spark can of course be retarded when running slowly on the high gear.

### A Text on Motor Cars.

Quite the most modern and most handsomely gotten up of the many books on automobiles is that entitled "Motor Cars," by Rhys Jenkins. It deals more particularly with the early history of automobilism, nearly one half of the book being devoted to the efforts, now almost forgotten, of early inventors and dreamers. Of contemporary records of both these classes the author has unearthed a surprising number, and the book is by far the most interesting collection of its kind.

What the author has to say about modern vehicles, while not for the most part very technical, is good information of its kind and has the merit of being quite up to date. Drawings of the engine and chassis of a modern English Daimler car are given, and the productions of English manufacturers in general are given much more attention than in most other available treatises. The leading French types are also described more or less at length, and a perfunctory and nearly worthless fraction of a chapter is given to American machines. A chapter on gearing and horse-power is included, but is of no value except to the tyro in these matters.

The book is most attractively printed on very thick coated paper and the binding is of an unusual order of excellence, marred, however, by the fashionable vice of uncut edges. It is published in this country by James Pott & Co., New York.

An automobile club has just been formed in Terre Haute, Ind.

# Foreign

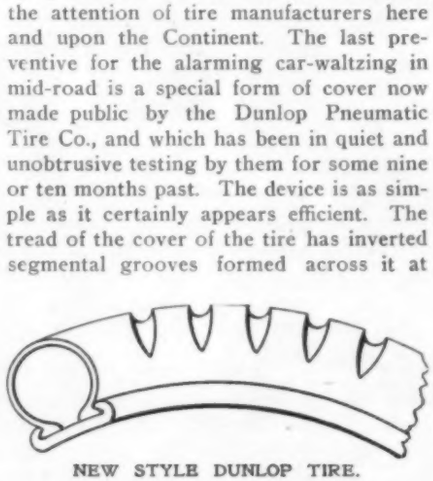
## TWO KINDS OF TIRES SCORE IN GREAT BRITAIN.

### TRIUMPH OVER SKIDDING EVIL.

**Motor Vans Tried for Six Weeks in Carrying Heavy Mail Between Liverpool and Manchester—Found Prompt and Reliable Even as to Tires—American Tires Praised.**

*Staff Correspondence.*

LONDON, Jan. 30.—Side slipping or *dèrapage* as our gay neighbors call it, or its prevention, is continually occupying the attention of tire manufacturers here and upon the Continent. The last preventive for the alarming car-waltzing in mid-road is a special form of cover now made public by the Dunlop Pneumatic Tire Co., and which has been in quiet and unobtrusive testing by them for some nine or ten months past. The device is as simple as it certainly appears efficient. The tread of the cover of the tire has inverted segmental grooves formed across it at



NEW STYLE DUNLOP TIRE.

about 1¾ inch intervals, the groove being about ¾ inch wide at its widest part. I think a notion of the head of this tire will be best conveyed by the accompanying sketch.

I will not discuss the non-slipping attributes of this cover from a theoretical point of view, but will merely state what has taken place under my own eyes. I have seen a 15-horse power car with four passengers up driven at 20 miles an hour round a right-angled corner in a crowded street, off greased wood onto greasier asphalt without a symptom of side slip. Further, I have seen this same car drive as fast or faster on greasy asphalt and both the pedal-applied differential band brake and the lever-applied side drum brakes jammed hard on; so hard that the rear wheels were locked rigid and slid for quite two lengths of the vehicle before the car came to rest. And this without a suggestion of swinging! Now had this particularly brusque treatment been administered to a car running on plain-covered pneumatic tires it would have spun round like a humming top and probably smashed not only itself, but everybody in it. It only remains to be seen what effect some 5,000 miles running has upon these segmentally grooved tires. Otherwise their fame as absolute non-slippers appears to be established beyond cavil.

#### SQUEERED MUD FROM UNDER.

It was interesting to examine the wheel tracks of the car where it had swung sharply round corners at high speed or where the brakes had been suddenly applied, as I have mentioned. Notwithstanding the wet and greasy condition of the road surfaces, the tracks were in both instances clean and dry, which indicates that the inverted segmental transverse grooves must clear the grease out side ways upon meeting the ground and find hard, dry holding for the tires below. The trials made last Wednesday with these new covers have attracted a vast amount of interest, as with the London streets in the condition they have been in since the break-up of the frost, it is absolutely dangerous to drive over them.

#### MAIL ROUTE TRIALS.

In the latter end of the past year the Motor Haulage Co., of Manchester, ran three 16-horse power Milnes-Daimler vans upon the Liverpool and Manchester road, admittedly the worst mail road in the United Kingdom, for the purpose of demonstrating to the postal authorities in that part of the country the better service such means of transport would render them over other forms of locomotion. The vans were numbered 1, 2 and 3 for the occasion. Nos. 1 and 2 were what is known as 2-ton lorries, while No. 3 was a 2½-ton vehicle. Nos. 1 and 2 had been already employed in Manchester in carrying goods about the city, but they were fitted with suitable van bodies for the postal service. No. 3, the 2½-tonner, was completed specially and was driven down by road from London. This trip of nearly 200 miles was performed without a hitch of any sort, the total running time being 18 hours, and the gasoline consumption equal to one gallon per ten miles. The van itself weighed two tons and carried its full load, so that the total weight was 4½ tons. The vans had hitherto run on iron tires, but before they started on the postal trips the wheels were fitted with Goodyear solid tires.

#### NO TIME LOSS OR BREAKDOWNS.

The trials were run precisely under post office conditions. For the first three weeks dummy loads were carried equivalent to an average post office load, viz.: about 30 cwts., or 3,360 pounds. The official times of starting were as follows:

| | |
|---|---|
| Manchester, departed | 10.15 P. M. |
| Warrington, 18 miles, arrived | 12.36 A. M. |
| Warrington, departed | 12.46 A. M. |
| Prescot, 10 miles, arrived | 1.45 A. M. |
| Prescot, departed | 1.50 A. M. |
| Liverpool, 8 miles | 2.51 A. M. |

Total time, 4 hours, 36 minutes.

The reverse route was as under:

| | |
|---|---|
| Liverpool, departed | 10.15 P. M. |
| Prescot, 8 miles, arrived | 11.10 P. M. |
| Prescot, departed | 11.15 P. M. |
| Warrington, 10 miles, arrived | 12.30 A. M. |
| Warrington, departed | 12.45 A. M. |
| Manchester, 18 miles, arrived | 2.51 A. M. |

Total time, 4 hours, 36 minutes.

The two vans thus started simultaneously from each end, the third van being held in reserve. The whole of the runs for the guaranteed month were carefully observed by officials, with the following mileage score resulting for each vehicle:

FIRST WEEK.

| | | |
|---|---|---|
| Van No. 2 made | 5 trips of 40 miles | = 200 miles. |
| Van No. 3 made | 4 trips of 40 miles | = 160 miles. |
| Total | 9 | 360 |

No time lost, no adjustments made.

SECOND WEEK.

| | | |
|---|---|---|
| Van No. 2 made | 4 trips of 40 miles | = 160 miles. |
| Van No. 3 made | 5 trips of 40 miles | = 200 miles. |
| Total | 9 | 360 |

No time lost, no adjustments made.

THIRD WEEK.

| | | |
|---|---|---|
| Van No. 2 made | 5 trips of 40 miles | = 200 miles. |
| Van No. 3 made | 5 trips of 40 miles | = 200 miles. |
| Total | 10 | 400 |

Van. No. 3 was late on the last trip owing to breakage of air pipe in petrol tank.

Van No. 2; no time lost, no adjustments made.

FOURTH WEEK.

| | | |
|---|---|---|
| Van No. 1 made | 6 trips of 40 miles | = 240 miles. |
| Van No. 2 made | 6 trips of 40 miles | = 240 miles. |
| Total | 12 | 480 |

No trouble of any sort, no time lost.

The vans were then taken over by the Government contractors, and from December 1 to December 29, which is the date at which the report closes, they had run regularly and splendidly carrying His Majesty's mails without any loss of time on the schedule and no breakdowns. During the trials referred to and the month of actual work the lower speed gear shafts only showed signs of wear and that wear was taken up when required.

While in the hands of the contractors the vehicles continued to run without breakdowns of any description, figuring up a total of 3,707 miles on the closing date, and this not only under very unfavorable road conditions, but the weather during all of this period was pitilessly averse. Nevertheless, the general post office is still hesitating about adopting motor transportation for the mails.

In the official report of the trials there is, however, a paragraph which will sound well in American ears. It runs as follows: "The Goodyear tires have been a revelation. They have worn splendidly; in fact, the moulding on the treads are not yet worn down." These tires are, of course, one of the two reasons of the success of the vans, the other being their mechanical fitness for the work.

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The French Minister of Agriculture, M. Mongeo, has arranged for a congress for the industrial utilization of alcohol, to be held in Paris during the week March 11-17, at the same time as the general agricultural congress.

## STATUS OF COMMERCIAL AUTOMOBILES IN FRANCE.

### BUILDERS MAKE SLOW PROGRESS.

**Demand for a Reliable Ecomonical Vehicle Is Large, But the Commercial Car Is Neglected for the Pleasure Vehicle—Light Wagons Are Successful But Heavy French Trucks Are Crude and Inefficient.**

*Staff Correspondence.*

PARIS, January 23.—The encouragement given to the commercial vehicle by the technical committee of the Automobile Club of France, and other associations, would seem to justify a much greater development of the industrial side of automobilism than has actually taken place in this country. Users here have long been looking out for suitable vehicles that will transport their goods under the best conditions of security and economy, and if on these points the automobile has an advantage over the horse drawn vehicle trades people would not be stopped by the higher first cost of such a car, always supposing of course that the price was not excessive.

In estimating the economy of a commercial car the French spread the capital over a number of years during which the

FIG. 6—THE RIKER FOUR-CYLINDER GASOLINE LOCOMOBILE, BODY STYLE "ROI DES BELGES"—See Page 194.

vehicle is likely to be in service, and the interest on the first cost is added to the repairs, gasoline, conductor's wages and all the other outgoing expenses which represent the upkeep. Against this is set off the load, so that the economy of a vehicle depends upon being able to transport the biggest possible load in proportion to the power used in the shortest possible time. In the gasoline car especially time is an important factor in economy, and in this way it differs from the electric car, and, to a less extent, from the steam vehicle.

VEHICLE TESTS DISAPPOINTING.

If the margin between the debit and credit sides of the account were more satisfactory than in the case with horse drawn vehicles the public would very readily adopt automobiles for the transport of goods, and the interest taken by tradespeople, local authorities and freight companies in this question is shown by the considerable number of delegates who formerly attended the tests, while people came from England, Germany, Italy and even Sweden to see what was being done by the French makers in the evolution of a successful freight vehicle. These tests must on the whole be set down as disappointing. There were plenty of vans, wagons and trucks of all kinds propelled by gasoline, steam and electricity, but the trucks were usually of a crude, heavy type, and through want of experience in the conditions of freight work the vehicles did not show up well in point of economy.

The foreign visitors saw that in this branch of automobilism they were capable of doing quite as much as the French makers; the railroad concerns and local bodies who were hoping to inaugurate services of public vehicles saw that they might have to wait a considerable time before the problem was satisfactorily solved, and so the French tests of industrial cars have been losing some of their old importance. Taking the last tests carried out in Paris the casual observer might have supposed indeed that French makers are giving up their interest in the industrial car, or rather are confining it to the lighter types of vehicles suited for town transport, as out of the eighteen cars competing there were not more than half a dozen employed for suburban work, and only three of them were trucks carrying loads of a ton or more. All of them were propelled by gasoline motors, and for the first time steam and electricity were absent. Judging from these results it would seem as if the question were being narrowed down to the transport of goods in cities, but as we shall show this is by no means the case, and the movement cannot be properly judged by the results of tests, which for some reason or another do not receive suffiicient support from makers who turn out industrial vehicles.

At the same time it must be admitted that the commercial car has been making far less headway than the pleasure carriage. The primary cause of this state of things is that the industry has been developed exclusively along the lines of racing and touring automobiles where speed and reliability are of more importance than carrying capacity and economy. The maker has been studying the requirements of the average buyer of automobiles under the impression apparently that if he produces a satisfactory touring carriage the industrial car could very well look after itself, since it would need a very slight modification of the usual type of vehicle to suit the needs of trades people and others. It is only recently that manufacturers have come to see that the commercial car raises an entirely distinct problem. Many of them in fact do not appear to see it yet, for they still think that if a man requires a vehicle for freight purposes he has only to fit a convenient body to their standard frames.

Up to a certain point this argument may be true so far as it concerns light vans and similar vehicles, and the number of them being used in Paris and elsewhere proves that they give satisfaction until further improvements are carried out in the way of greater economy. In the last tests these cabs and vans ran very satisfactorily indeed. They were fast and regular, and despite the extremely bad weather conditions, when the cars had to run through snow, over frozen streets and greasy mud on alternate days, the vehicles caused very little trouble. The consumption per ton load was rather smaller than on previous occasions, though the difference was not so great as might have been expected, and in the majority of cars the economy has not reached a point which will make commercial automobiles indispensable for cab campanies and trades people to whom economy is a great consideration.

SPECIAL DESIGNS ARE BEST.

The best results were obtained by cars specially designed for freight purposes. As we have said the majority of makers do not pay much attention to the industrial branch of the industry, as they think that they can get much more profit by catering for the needs of people requiring high-priced cars. At some time or another—and perhaps before long—they will find it necessary to look at the situation from a different standpoint. Competition is becoming a factor which will compel them to make the most of new sources of profit, and they will also see that the commercial car has a much greater capacity for expansion than the pleasure vehicle. When this truth is impressed upon them we shall witness a development in the commercial car fully as great as that which is now taking place in the touring carriage.

For purposes of tests the leading firms have frequently sent excellently constructed omnibuses, vans and wagons with standard two and four-cylinder vertical motors, but they have always been equalled in regularity, and beaten in economy, by more rational types of freight vehicles. Makers seem to be so convinced of the failing of their cars in this respect that they no longer find it advisable to take part in economy tests at all, unless such tests are organized by the Minister of Agriculture or under other auspices which would make their abstention impossible. The successful makers are those who turn out special types of vehicles. Singularly enough these were not designed primarily for freight purposes, but are the original mechanisms employed on pleasure carriages. At the time when objections were raised against the automobile on the ground of noise and vibration many firms tried to overcome them by using horizontal motors and belt transmissions. For a long while these systems of driving gear had a certain vogue, but the continued improvements in the pleasure carriages gave a popularity to the vertical engine which has entirely replaced the horizontal motor on automobiles for touring and town use. At the same time these original mechanisms are found to have a greater economy than the new engines and transmissions, or at least they did until the latest types of automatic governed motors were brought out. Concerning these it is difficult to say yet whether or not they have an advantage in economy, and while new vertical engines have been designed for pleasure carriages makers have still been adhering to their old systems for the industrial vehicles.

ORIGINAL FRENCH PRACTICE.

An instance of this separation of the two classes of vehicles is seen in the experience of three of the oldest automobile firms in the country—Peugeot, De Dietrich and Delahaye—who all started with horizontal motors and transmission belts. In the struggle for supremacy no maker can lay himself open to the charge that he is lagging behind the times, and whatever may be his private impression as to the comparative merits of horizontal and vertical engines, he has found it necessary to adopt the four-cylinder vertical engine as a concession to public opinion. This has also meant a change in the design of his carriages, which follow the latest practice in the application of the carriage builder's art to the automobile. The commercial car is not susceptible to the same influences of fashion. The buyer does not trouble about the form or appearance of his vehicle so long as it gives the biggest carrying capacity and the largest platform area, and if the engine and driving gear are economical it matters little to him whether the system is up to date or is merely an improvement on old designs. In the industrial car the end justifies the means, the end being the conveyance of goods in the cheapest possible manner. Being unfettered by popular prejudice or

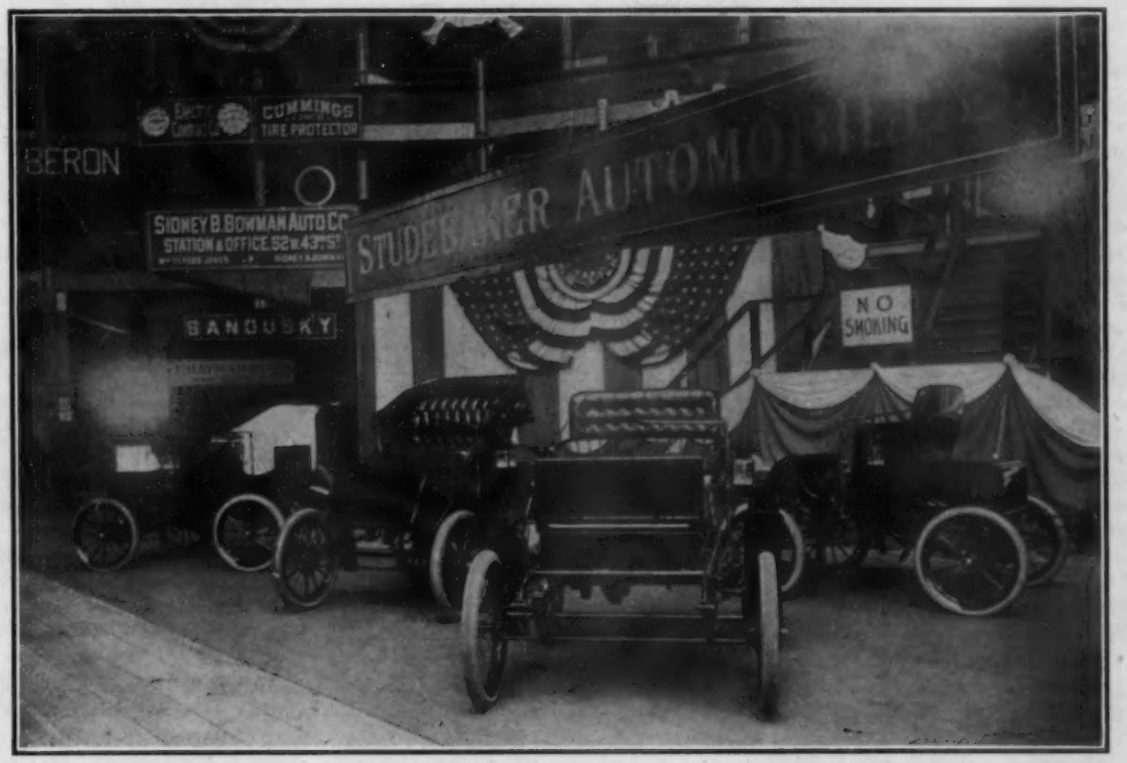
preference the maker has a perfectly free hand in the building of freight vehicles, and this branch of the industry ought therefore to develop more rapidly than the pleasure carriage. That it does not must be attributed solely to the fact that very few makers give any serious attention to the construction of these cars, and even they are content to employ old systems instead of carrying out experiments in the hope of finding something more efficient and more economical.

The Peugeot industrial cars employ a two-cylinder horizontal motor, and in their first vehicles they transmitted power by belt and gear, but the belt has now been suppressed. In the De Dietrich vans and trucks the old Amédée Bollée system is still used with a two-cylinder horizontal motor, governed on the exhaust, and belt transmission to the countershaft, which gears on the driving axle by bevel shafts. The Delahaye system was described in a recent letter on belt transmissions. The efficiency of the belt has lost a good deal of its importance since its entire suppression on pleasure carriages, but as it may still be a prominent feature on industrial cars we may call attention to the invention of new systems of belts which are intended to give a great holding power and prevent stretching. One of the best known of these is the chain belt, built up of strips of green leather through which pass metal pins, the thongs forming what are practically the sides of a chain. This type of belt has been put to very severe tests under all conditions of power transmission and appears likely to find a useful scope in automobiles where belt transmissions are employed.

HORIZONTAL MOTOR VEHICLES.

Another car which has been successful in economy tests is the Gillet-Forest. The makers of this car are, we believe, the only people in this country employing a single cylinder horizontal motor. The transmission is by sliding gears. It is a very solid and well-constructed châssis, and has always given proof of great reliability, regularity and economy. A horizontal engine is also used by the makers of the Bardon cars who pay special attention to commercial vehicles and in fact during the past year or two they have been turning out little else; but in this case the two cylinders are placed in the same axis, or rather one cylinder is employed with explosions between two pistons. Power is transmitted from the two crankshafts to the parallel countershaft by bevel gear. Exactly the same principle is observable in the Gobron-Brillié motors, where, however, the fuel is fed positively by spoon-shaped receptacles which contain just enough gasoline or alcohol for each charge. Both the Bardon and Gobron-Brillié motors are very economical, and it is found that they give a high efficiency wth alcohol than with gasoline, a result quite contrary to that obtained with the usual types of engines. This discovery led the way for a complete understanding of the peculiarities of alcohol, and brought into prominence its higher qualities of expansion, which could be utilized to much special advantage in motors with explosions between two pistons. This question of alcohol motors will be dealt with in another article, since it is one which is likely to have a considerable influence upon the future development of the commercial vehicle.

For the moment it will be seen that the industrial car stands practically at the point from which the pleasure vehicle started. It is constructed upon the original systems, which have certainly been greatly improved in the way of efficiency and economy, but still it seems a little strange that with such a wide scope for ingenuity it has not been able to at least keep pace with the pleasure carriage. In town delivery vans a good business is being done, and the backwardness of French makers is chiefly noticeable in heavy wagons. That there is a big demand for them is shown by the number of public services that are being opened up all over the continent, but whether or not the trade will fall to French manufacturers depends upon whether they are able to make more progress in heavy vehicle construction than they have done in the past, principally in the direction of economy.




STUDEBAKER ELECTRIC VEHICLES AT THE MADISON SQUARE AUTOMOBILE SHOW.

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Henry S. Harkness, of New York, one of the four candidates for the Gordon Bennett cup team, has cabled to a friend in Paris to present his entry for the Paris-Madrid race. He will start in this event even if not chosen for the international race.

# Correspondence

## Experiences with a Gasoline Runabout.

*Editor* THE AUTOMOBILE:

Sir:—This city is known the world over as a carriage town. We do enjoy an enviable reputation in that direction. We are naturally very proud of it. This was the home of the Quaker Poet—Whittier, and it is here that another author of note claims her home—Harriet Prescott Spofford. It is a beautiful town, and contains a class of very conservative people. The writer was the first to buy a gasoline car, in fact, the first to own and use any motor car. The town's people, and the other doctors especially, watched "my experiment," as they termed it, very closely. Some of the told-you-sos were really provoked at the end of the first month, because I had not been towed home by horse power. I have kept a very careful account of all expenses and give them for the benefit of your readers. It had cost me for fifteen years to keep a horse about $240.00; namely, $200.00 for board and care, and from $25.00 to $32.00 for shoeing, according as to how much sharpening was necessary through the winter. To this is to be added repairs to harness, carriages and sleighs, including repainting, varnishing, etc. I had used a bicycle for seven or eight years so as not to buy another horse. After using a horse in my practice for fifteen years at the above cost, supplemented with 20,000 miles actually covered on a bicycle, I sold the team, gave the bike to a boy, and bought a light gasoline runabout. I began using the auto about April 1 last. During that time, I had a stable team on two occasions and rode on the electric cars some in bad weather.

I rode, as a matter of choice, day or night, it matters not, the car was always ready to go. It never failed to start or to stop. I never frightened a horse, though I did compress four dogs. I did all my work and all my pleasure, covering 3,500 miles in all. The cost was as follows: for legitimate repairs, $1.95; gasoline, $25.95 (160 gallons), batteries, $7.20, a total of $35.10. There was some other expenses which you could not rightly charge up to the car. I attempted one day to pass over a road when the street railway company were cutting down a grade. I got the auto into the sand so deep that both axles rested on the sand. I tried to pull out, and as a consequence, stripped three teeth off the rear sprocket. I ran into the corner of the barn one day and twisted the steering device, had some tire troubles, paid some express charges, and did some experimenting, all of which cost $25.10. Now, if any reader wishes to add these two items, they can easily see what eight months' automobiling has cost me.

There is a chapter of great pleasure and solid comfort that could be added. All this labor and pleasure was not enjoyed by the lone operator. Selfishness is not an attribute of the true automobilist. That broad, inward manliness, knows no bounds of pleasure, when he is cognizant that he is making others happy. The open country road ahead of you, with a knowledge that your car experiences no fatigue. A winding ascent makes the exhaust clear and resonant, but there is no hill without another side. The fragrant blossoms and bending clover of spring, but usher you into the heart and toil of midsummer. The poor beast of burden halts beneath the inviting shade of the wayside elm. You cast a pitying glance at the half dead animal while on rushes your beast of steel. The summer breezes brush the perspiration from your brow. Ten miles fall into the embrace of the twenties, and the fifties soon clasp hands of one hundred, and it has been only a pleasant seven or eight hours' trip. Home again, and would you know you had inhaled so much pure atmosphere?

Dollars and cents is not all a man should count. How much can you obtain of this new element of life, in addition to the dollars and cents saved? The automobile rightly handled on the road is an educator. The frail man and timid woman are not going to be killed outright. We can illustrate to them that we want only a little piece of the road, and they can have the rest. We will be on our way, with them forgotten, while they are getting frightened. Go back to the horse? No. Not while the automobile takes me safely over thirty miles of country road by lamplight in two hours and ten minutes, without a single stop. For what better service could you ask? The automobile is gently asking for better roads, for that is in exact accord with what it is doing itself. Every time it passes over your streets it improves the road there. It is an educator in many directions, and upon the shoulders of the operators rests the responsibility whether we take from or add to the results.

H. C. COOPER, M.D.

*Amesbury, Mass.*

## A Compressed Air Vehicle.

*Editor* THE AUTOMOBILE:

What difficulties prevent the successful operation of an automobile propelled by compressed air? I have in mind a runabout for city use designed to carry as much air as possible, same to be released through an engine such as is used on the ordinary steam vehicle. To replenish my air tanks away from home I would have an air pump readily attachable to my engine, when by connecting by steam hose to any boiler, when I could get the privilege, my carriage could be pumping up power while I did my errand. At home I would employ a windmill to charge a stationary reservoir. No doubt these ideas are impracticable, else my machine would be in use, but they present so many attractions and advantages that I have a burning desire to hear scientific reasons from a reliable source why they won't "work." If you think it would prove of sufficient interest to your other readers to warrant you doing so, please print my query with answer asked for.

G. W. E.

*Bowling Green, Ohio.*

[Your question is best answered by saying that compressed air as a motive power for automobiles is mechanically feasible, but not practical, because the weight and bulk of the compressed air, even for a short run, would far exceed those of the present boiler and fuel equipment. A compressed air carriage, in fact, would be even heavier for a given radius of action than an electric, and equally with the latter would be dependent on some kind of a charging station, even if the charging station were nothing more than a steam boiler. You must remember that to be available for charging purposes in the scheme you propose, the pressure of the steam must be at least 50 pounds, and better, 100 pounds or more, so that the ordinary domestic furnace would not do. The lower your steam pressure the smaller your air pump will have to be relatively to your engine, and the longer it will take to pump up your storage tank. To allow for the inevitable losses in the conversion of power, if your boiler pressure is the same as that of the air in your storage tank, you will have to run your engine about 50 per cent. longer to charge the tank than it would take to discharge it, assuming that the average engine speed when pumping and when running the carriage are the same.—Ed.]

## Wet Spark Plug Gives Trouble.

*Editor* THE AUTOMOBILE:

Sir:—We have been having a lot of rain recently and I noticed that every time I was out in my automobile during a rainstorm that it did considerable misfiring for the first mile or two. For some time I thought the trouble was in the carbureter, due to the damp atmosphere. A fellow-owner, however, proved it to be the plug.

This plug is in a position where water can get at it, and he claimed that there was a circuit from the cap where the wire is attached to the body of the plug made by the water covering the porcelain. He proved it by hooding the plug with a piece of asbestos when my motor would run regularly from the start, no matter how much it rained. He explained that the trouble stopped, previously, after I had been running a while, because the porcelain got heated up enough to immediately evaporate any water which fell on it.

O. S. C.

# MOTOR BOATS

## U. S. GOVT. LICENSES FOR ALL YACHTSMEN.

### IMPORTANT AMENDMENT TO LAW.

**Committee on Pilot Rules Recommends a Special Form of License for Yachtsmen Both Corinthian and Professional, Without Preliminary Service as Mates at Sea.**

As the result of some energetic action in self-defense on the part of New York yachtsmen the question of licenses has been settled in a way which promises to be both satisfactory and permanent. As already told in THE AUTOMOBILE, the question came up through the recent ruling of a new official just assigned to duty at New York, who overruled a precedent of many years' standing, and refused to issue licenses to yachtsmen unless they could show three years' sea experience as third, second and first mate. He also declared invalid the licenses issued by his predecessors. Capt. Howard Patterson, of the New York Nautical College, was requested by a number of influential yachtsmen to present their side to the authorities at Washington, and as it happened the Board of Supervising Inspectors of Steam Vessels was just holding its annual session.

As the result, the following report has been made by the committee having this subject in charge:

The Committee on Pilot Rules of Atlantic and Pacific inland waters, having had under consideration the communication of Captain Howard Patterson, presented to the Board by Captain Howard Patterson, through the Supervising Inspector General, on January 24, 1903, relating to defining the status of yacht owners and sailing masters, beg leave to report as follows:—

That the following be added as a new section, No. 27, to Rule V. of the rules and regulations:—

"27. Whenever the owner or sailing master of steam or sailing yachts, who has had three years' experience on board such yachts, applies for license to act as pilot of steam yachts, the local inspectors shall examine the applicant in writing in regard to his knowledge in handling such vessels and familiarity with the lights, lighthouses, channels, buoys, obstructions, courses and distances between certain points in the waters within the local inspection district in which the applicant is examined, and shall also examine him as to his knowledge of the pilot rules for inland waters, the running and anchor lights, fog signals, the use of the lead line, signal bells between the engine room and pilot house and the general rules and regulations for steam vessels.

"If the local inspectors are satisfied after such examination of the applicant's ability a pilot's license for steam yachts may be issued to him for the waters covered by the local inspection district in which said license is issued, which license may be indorsed to include the inland waters of other local inspection districts by the local inspectors therefor, if satisfied, after examination, that the applicant is qualified therefor.

"Whenever the owner or sailing master of a steam or sailing yacht of over 100 gross tons, who has had three years' experience in sailing such vessels, applies for a license authorizing him to act as master of a steam yacht for coastwise and ocean navigation, the local inspectors shall examine the applicant as to his knowledge of the rules of the road, fog signals, signal lights, inland and international; the use of the lead and line, the use of the patent and chip logs, the compass, variation and deviation of the compass, the use of the drag, the use of oil during storms, bell signals between pilot house and engine room, handling of steam vessels, laws of storms, course and distance by charts, keeping the log book, middle latitude sailing, Mercator's sailing, method of obtaining latitude and longitude by dead-reckoning, latitude by meridian, altitude of either the sun, moon or stars; longitude by chronometer (time sights).

"Practical problems will be given in the subjects of latitude and longitude. The examination shall be in writing, which shall be kept on file in the office of the local inspectors. If said examination is satisfactory to the local inspectors they shall issue to the applicant a master's license, authorizing him to discharge the duties of master of steam yachts, either for coastwise or ocean navigation."

Up to the present time but four classes of license have been officially recognized, viz.: for ocean masters and pilots, coastwise masters and pilots, for inland waters and for the lakes. Under this proposed amendment, which is practically certain of adoption, legal provision will be made for a fifth class of licenses for pleasure craft.

### Summer Cruising Launches.

*Special Correspondence.*

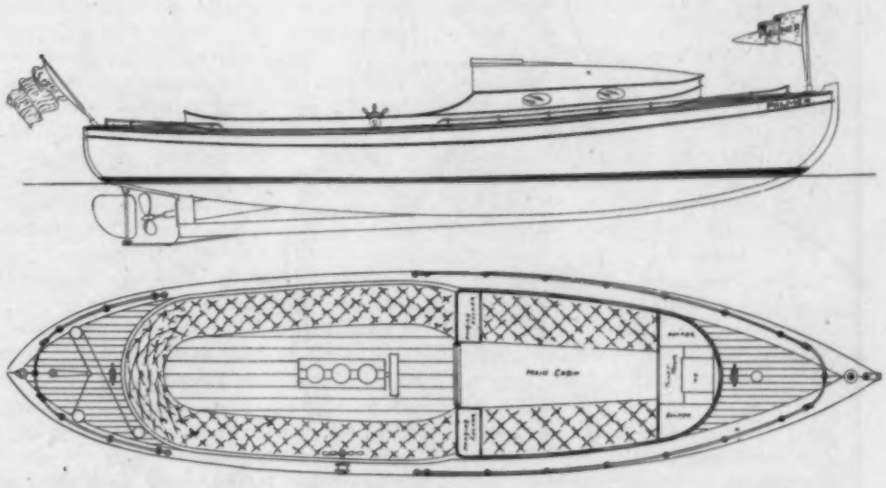
NEW HAVEN, Conn. Feb. 5—Captain Charles W. Foster has begun work on a 28-foot modern cruising launch to be called the *Palmer*, in which her owner, whose name is not revealed at the present time, will spend the summer on Lake Champlain and the Great Lakes.

As the plans given herewith show, she will be one of the handsomest craft in the motor boat fleet that has ever been turned out in Connecticut, the torpedo boat stern and fine and graceful lines of the bow and under-body setting her off to great advantage. She will be especially planned for making fast time and also for the comfort of her passengers. She will be oak timbered, planked with pine and the interior of the cabin will be veneered with mahogany and finished in white and gold.

The *Palmer* will be what is called "a hunting boat" out West, and, in fact, she is being built from Western plans. She will carry a single mast and will sport a cat rig when it is desirable. The mast can be readily unshipped, and the boat will look fully as well without as with it, which is more than can be said of some of the auxiliary rigged boats.

For power the *Palmer* will carry one of the new three-cylinder Foster engines, which will give her 12-horse power, and it is expected that she will make a record for her inches on the Sound before she goes to the lakes. She will also be fitted with the Foster friction clutch and reversible screw propeller. She will be ready to be put afloat in April.

This boat will attract attention on the Sound, as she is the first of this class that has been seen here.



OUTBOARD PROFILE AND CABIN PLAN OF THE MOTOR BOAT PALMER.

### Effects of Cost of Gasoline.

*Special Correspondence.*

NEW LONDON, Feb. 2.—With the price of kerosene soaring, fishermen are getting anxious over the probable cost of gasoline when their season opens in the spring. The price here for inferior oil last season rose to 20 cents a gallon, and it is expected that it will be no lower this spring. Anticipating the expense of running motor boats, some of the fishermen are getting out discarded masts and sails. Unless the cost of gasoline is reduced, it will affect the business of the engine manufacturers and will doubtless have a serious effect upon the advance of the launch and motor boat generally. The gasoline motor superseded sail and steam, and the problem of oil will eventually call for the invention of an engine to utilize some cheaper grade of hydro carbon.

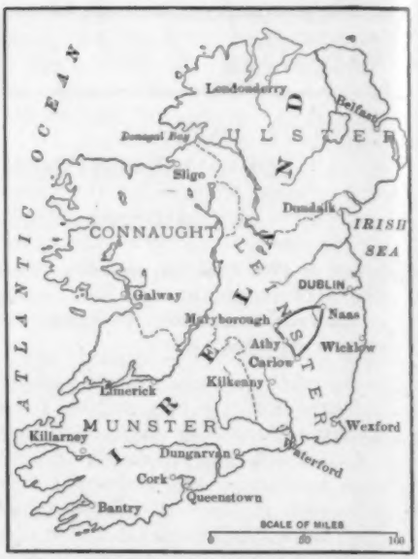
# Ireland Wants Gordon Bennett Race on Her Roads—Indications Favorable.

The Automobile Club of Great Britain and Ireland is loath to give up all hope of holding the race for the Gordon Bennett cup on British soil, and through its latest efforts one of the two serious obstacles, that of finding a suitable course, has apparently been surmounted; and the other, that of parliamentary consent, is growing less formidable. Undoubtedly the French motorists would strongly prefer that the race should be run in their country, but they have no valid grounds for objection to a British course provided the conditions on which the cup is held be complied with.

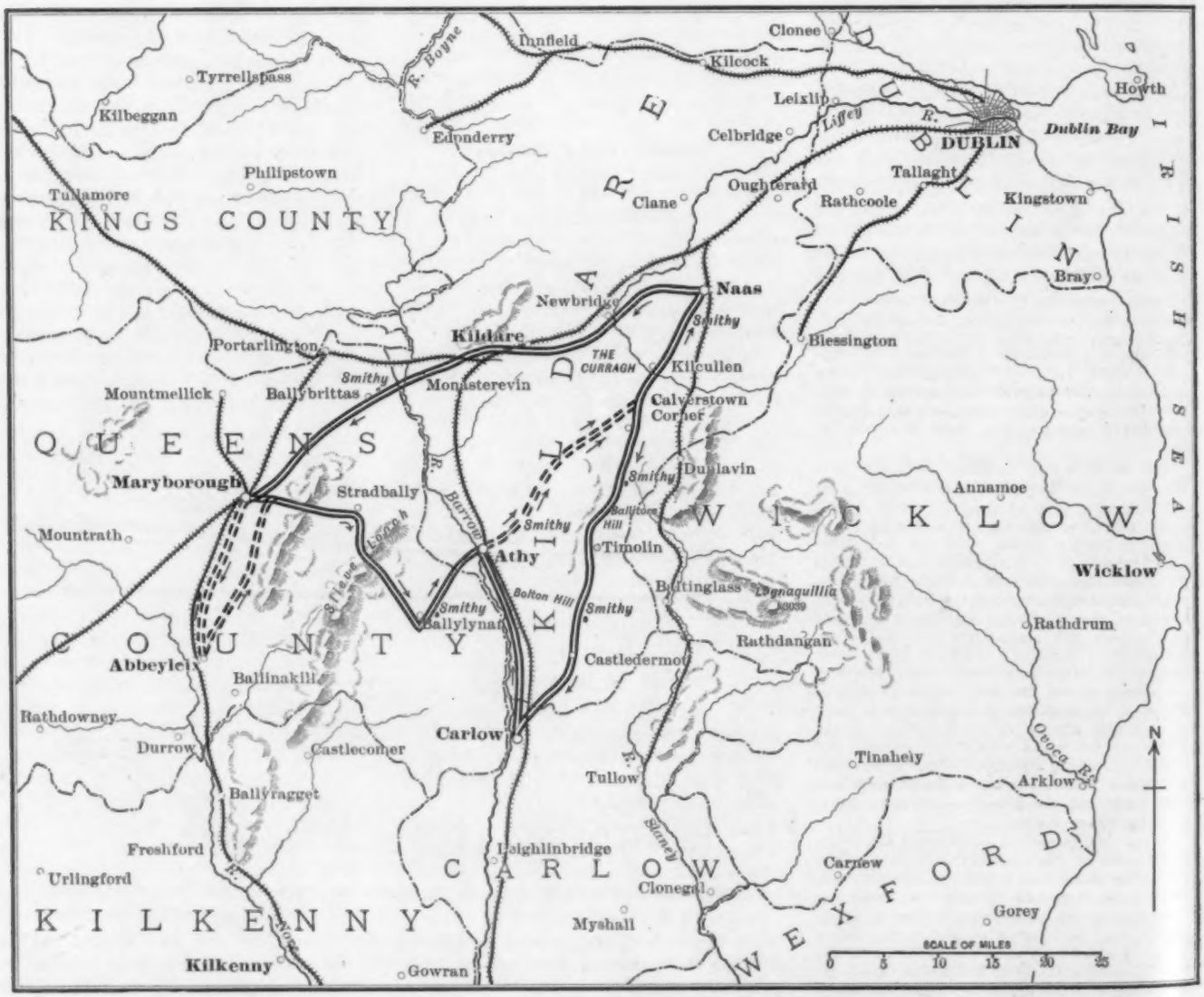
After various preliminary searches in Ireland with unsatisfactory results, the representatives of the club discovered a stretch of road of over 150 kilometers in length, which they have pronounced fully satisfactory as to condition.

This road lies in the Province of Leinster, the start being at Naas, some 30 miles southwest of Dublin. The proposed route is, in detail, as follows:

Start, about 1¼ miles from middle of town, at canal bridge, to Newbridge, 5 miles, road has several bends, with five straight stretches not less than ½ mile each; to Kildare, 4¾ miles, across Curragh Downs, almost dead straight; to Monasterevin, 6½ miles, sharp turn at railway bridge, then dead straight for 5 miles, narrow at places; to Maryborough, 10 miles, with 8 miles of dead straight with space for passing. From Maryborough to the cross-roads, 12¾ miles, includes two good straights of 6 and 4 miles, with a couple of miles of narrow and winding road at the end; from junction with Athy-Kilkenny road, 5¼ miles, with short steep hill on curve, followed by wide and straight road for 5 miles, into Athy; to Carlow, 11¼ miles, with many




MAP SHOWING RELATION OF COURSE TO REMAINDER OF IRELAND.




SCALE MAP OF THE PROPOSED COURSE FOR THE GORDON BENNETT TROPHY RACE IN (PROVINCE OF LEINSTER) IRELAND.

turns, preventing high speed; Carlow to Castledermot, 6¾ miles, half with curves of large radius and half straight; to Halverstown Corner, 14 miles, alternate straight lengths and bends; to Naas, 10¼ miles, fairly straight road.

The total distance is 90½ miles, or 145.7 kilometers. This course may be lengthened 26½ miles, making a total distance of 188.4 kilometers, by going direct from Athy to Old Kilcullen, over an excellent old coach road, then through Castledermot and Carlow, back to Athy, and for the second time to Kilcullen and on to Naas. Three times over this course would make 565 kilometers for the full course.

The road was very thoroughly inspected last month by Secretary Claude Johnson, of the club, accompanied by S. F. Edge, Count Zborowski and Charles Jarrott, all expert drivers and racing men, and they pronounce it superior to that on which the cup was won last year, both in surface and straightness. As an alternate to covering one part of the road twice, an extra loop to the south from Maryborough through Abbeyleix is possible, but this piece of road is inferior.

It would seem from the report that this course is well suited to avoid all but merely frivolous objections. It will be absolutely neutral, even in so far as the British representatives are concerned, and the difficulties are no greater than desirable for such a thorough test of the vehicles as a great international race should be. It would probably be preferred by both German and American competitors to a course in France, and as a race the contest will attract far more interest if run on its own merits on a separate course than if merged in a longer and in some respects more prominent contest, such as the Paris-Madrid event will be.

The project is favored by the club and also by the people of Ireland, and every influence will be brought to bear on Parliament to secure the necessary permission.

In answer to a letter addressed by Roger W. Wallace, the chairman of the Automobile Club of Great Britain and Ireland, to members of Parliament representing Irish constituencies, a number have replied that they will be happy to sign a petition to Parliament that a bill may be passed which would enable the race to be run in Ireland, provided that proper measures are taken for the safeguard of the public, and that they will support the measure when it comes before Parliament.

It is proposed to start the race at 3 A. M. on July 9, the roads to be kept clear of ordinary traffic for ten hours, or until 1 P. M. Should the race be permitted, plans will be made for tours in Ireland after the race for the many visitors. A hill-climbing contest near Belfast is also under discussion, and Alfred Harmsworth, the publisher-motorist, has promised a cup for motor launches, to be first contested in Cork Harbor.

# Proposed Commercial Vehicle Trials.

Some difference of opinion between the Automobile Club of America and the National Association of Automobile Manufacturers has at times been surmised, but has usually been well smoothed over in the interest of the moral effect of a united front by the two leading automobile organizations. Until the Madison Square Garden show, held under their joint auspices, was over, the external appearance of harmony was preserved, but no sooner had this affair been successfully pulled off, before an open declaration of disagreement in views was made by the manufacturers' association in the form of a resolution expressing disapproval of the most important future event projected by the club.

A copy of the resolution was duly transmitted to the club, where it was received with surprise as a gratuitous interference with the club's autonomy, in fact, as an impertinent attempt at meddling with internal affairs over which the club claims sovereign powers. Between two governments a similar notification would have been considered an "unfriendly act," to be followed by blockades and other measures of war, but not so in the more pacific realm of automobilism. Both bodies, through such functionaries as can be made to declare themselves, maintain that no hostilities will ensue and that there is nothing in the incident of great consequence.

But from the outside the resolution by the manufacturers looks as a deliberate challenge to the club to hold no automobile contests in the future without first obtaining the sanction of the manufacturers' organization; in other words, to keep its hands off the development and encouragement of the industry, in general, and limit its activities to matters of sport; failing in which the two organizations will have to measure strength.

The next step should be a diplomatic note from the governors of the Automobile Club of America, either resisting and resenting the interference or falling in line with the command of the industry.

The projected contest to which the interdict of the manufacturers refers is one for "commercial vehicles," to be held in the spring and for which the Automobile Club of America has already made extensive preparations.

At the meeting of the executive committee of the N. A. A. M. on Wednesday, January 28, a resolution was passed declaring that the committee did not favor trials for commercial vehicles this year, and the club was notified by the association secretary, Mr. Harry Unwin, that this resolution had been passed.

Immediately a strong feeling of resentment was manifested at the club and has not abated since. Secretary Butler declares that in all likelihood the contest will be held as planned, even if only two vehicles are entered, but that the club has good assurance that at least six or eight heavy commercial self-propelled machines will participate. "After the 500-Mile Reliability Contest last fall," said this official, "it was clearly recognized at club meetings and elsewhere, that the greatest financial interests in the automobile movement would in the future be connected with the development of commercial vehicles, and the club, as a society for the encouragement of automobilism, found it entirely within its province to devise means for bringing this to public attention and thereby fostering improvements in the manufacture of this class of automobiles. As all admit, nothing will accomplish this purpose so effectively as public contests under the management of a club which has no financial interest in the result. We don't expect to make a profit from holding this proposed contest, just as we have not made money from any of our previous contests. They are held purely for the benefit of the public and the industry."

It was further stated that the first definite suggestion for holding a contest for self-propelled trucks and other commercial automobiles at an early date, had emanated from R. L. Morgan, of Worcester, Mass., and that the club had subsequently sent out letters of inquiry to a number of manufacturers requesting them to signify whether they approved a contest such as proposed. Among those from whom favorable replies had been received were the following firms who make commercial vehicles of varying description: Morgan Motor Company, Worcester, Mass.; Motor Truck & Vehicle Company, Columbus, O.; Vehicle Equipment Company, Brooklyn; Electric Vehicle Company, Hartford; Adams Express Company; Daimler Mfg. Company, Brooklyn; Upton Machine Company, Beverly, Mass.; Trumbull Mfg. Company, Warren, O.; Fischer Motor Vehicle Company, Hoboken, N. J.; H. Bartol Brazier, Philadelphia; Thornycroft Steam Wagon Company; Union Motor Truck Company, Philadelphia; Chicago Motor Vehicle Company.

All of these make heavy vehicles. In addition some favorable replies were received from other manufacturers who make delivery wagons, but otherwise have not given attention to the "business automobile."

Assurance was also received from T. Coulthard & Co., Ltd., of Preston, England, through their Boston representative, Mr. John Gardner, that they would enter one or more Coulthard machines in any contest for trucks that might be held.

"The technical side of this contest is, of course, receiving full attention," said

(Continued on page 206, 2d column.)

# Automobile Show in Chicago Sanctioned by

CHICAGO February 5.—At a meeting of the Chicago Automobile Club, held last night, a committee on entertainment comprising the entire board of directors of the club was appointed for the occasion of the annual automobile show to be held in the Coliseum, from February 14 to 21. This committee will establish headquarters on the second floor of the annex and will endeavor to make pleasant the stay of attendant automobilists and tradesmen.

A special committee was also appointed to co-operate with the National Association of Automobile Manufacturers regarding local arrangements for the Good Roads Convention, to be held in the annex on February 20.

This committee at once telegraphed to New York for a list of the prominent good roads advocates who have accepted the invitation of the association to attend and address the convention. This information was wanted for the purpose of giving early publicity to the convention in order to attract the largest possible attendance.

Arrangements were decided upon at the same meeting for inviting the representatives of the local and visiting daily and automobile press to inspect the building and general arrangements at the Coliseum on Friday night preceding the opening on Saturday.

During the past two days additional applications for exhibition space at the show have been received by Manager Miles from the Northern Manufacturing Co., of Detroit; the Union Automobile Co., makers of friction drive machines now being exhibited at Cleveland; the Fanning Manufacturing Co., makers of electric vehicles, in Chicago; J. C. Brandes, selling agent in the United States for the German Cudell car; the Muncie Wheel & Jobbing Co., of Muncie, Ind.; the Briscoe Manufacturing Co., of Detroit; the Western Storage Battery Co., and the Barton Boiler Co., both of Chicago. The Mobile Co. of America has withdrawn from the show, stating that it is too busy in the East to make a display here. Other withdrawals that have occurred since the last previous publication of the list of exhibitors are the Crompton Motor Carriage

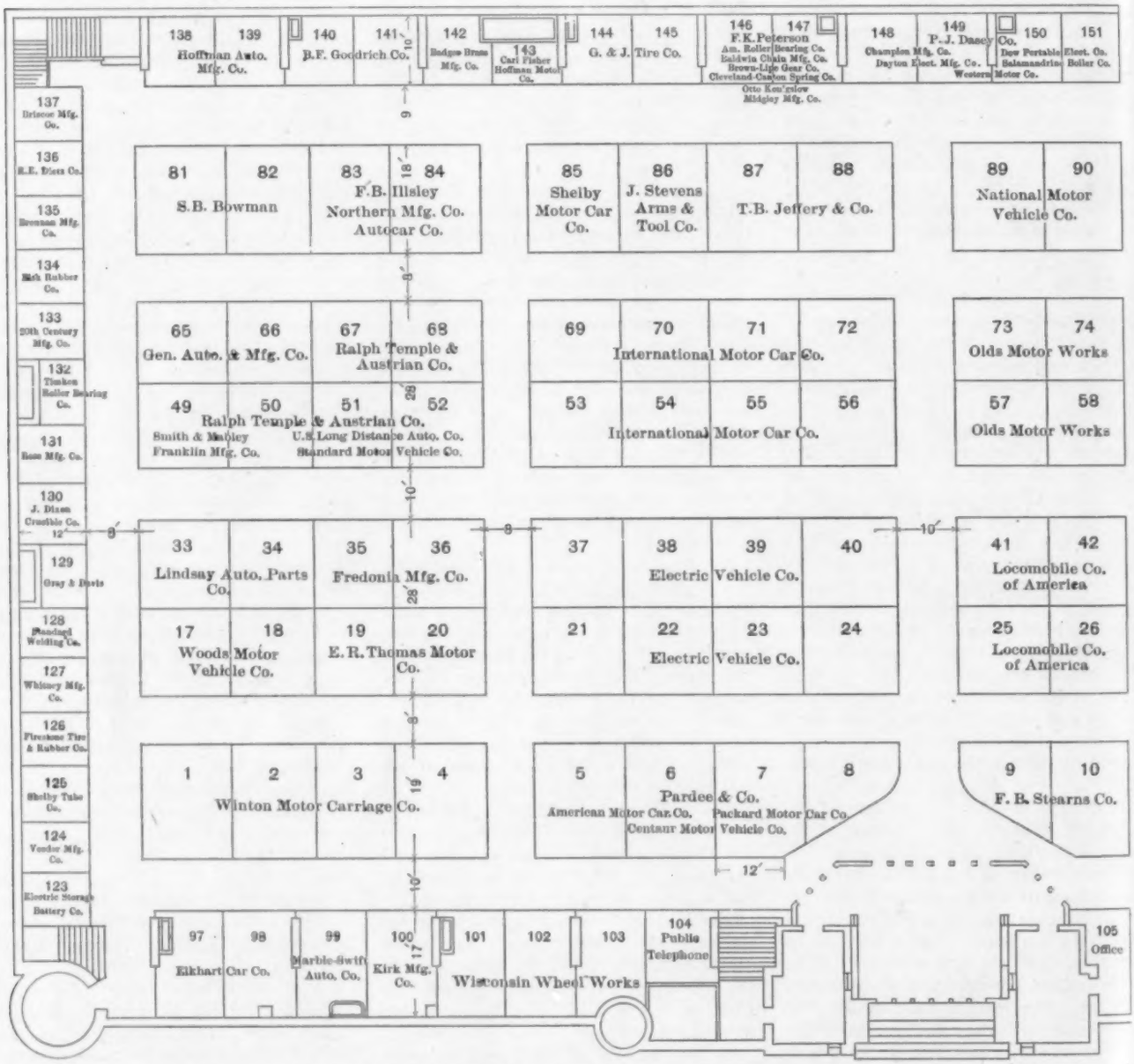



DIAGRAM OF EXHIBITION SPACES.—For List of Exhibitors see page 214.

# the National Association of Manufacturers.

Works, of Worcester; the Berg Automobile Co., of New York; Graham Automobile & Launch Co., of Akron; the Premier Motor Manufacturing Co., of Indianapolis, and the Thomas & Bowman Automobile Co., of Buffalo.

The list of exhibitors to date includes 125, of whom four are agents representing several different manufacturers. More than sixty different makes of complete automobiles are in the list, which also includes several makers of motor bicycles. As letters have been sent out within the week to fifteen manufacturers who exhibited at the New York and Cleveland shows, announcing that there is still a chance for them to secure a limited number of spaces at the Coliseum, it is expected that when the show opens a week from Saturday night all of the spaces on the main floor and in the annex will be taken.

The combined floor space of the Coliseum and the annex amounts to more square feet than were comprised in the Madison Square Garden show, including the main floor, the balconies, the basement, the restaurant and the special boxes. As the exhibits will all be on the ground floor, and provision has been made for ten-foot aisles, the Chicago show will be a more convenient one for the public than the New York affair, and the exhibitors will be on a more equitable basis, as their displays will be readily accessible to the public instead of some of them being hidden away in remote corners.

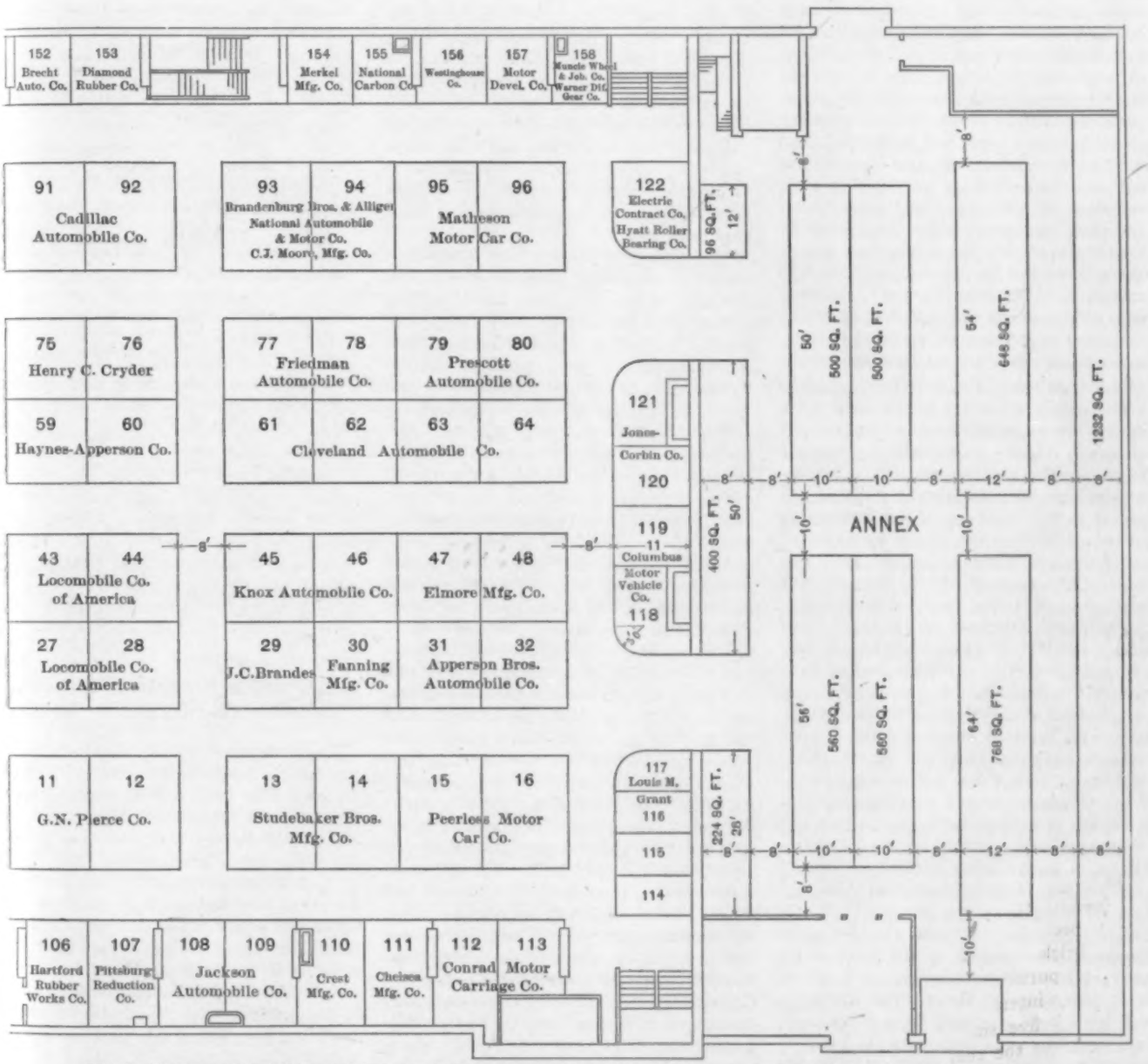

152 Brecht Auto. Co.
153 Diamond Rubber Co.
154 Merkel Mfg. Co.
155 National Carbon Co.
156 Westinghouse Co.
157 Motor Devel. Co.
158 Muncie Wheel & Job. Co. Warner Dif. Gear Co.
91 92 Cadillac Automobile Co.
93 94 Brandenburg Bros. & Alliger National Automobile & Motor Co. C.J. Moore, Mfg. Co.
95 96 Matheson Motor Car Co.
122 Electric Contract Co. Hyatt Roller Bearing Co.
96 SQ. FT.
75 76 Henry C. Cryder
59 60 Haynes-Apperson Co.
77 78 Friedman Automobile Co.
79 80 Prescott Automobile Co.
61 62 63 64 Cleveland Automobile Co.
121 Jones-Corbin Co.
120
119
11 Columbus Motor Vehicle Co.
118
400 SQ. FT.
50'
50' 500 SQ. FT.
50' 500 SQ. FT.
54' 648 SQ. FT.
1232 SQ. FT.
ANNEX
43 44 Locomobile Co. of America
27 28 Locomobile Co. of America
45 46 Knox Automobile Co.
47 48 Elmore Mfg. Co.
29 J.C. Brandes
30 Fanning Mfg. Co.
31 32 Apperson Bros. Automobile Co.
56' 560 SQ. FT.
56' 560 SQ. FT.
64' 768 SQ. FT.
11 12 G.N. Pierce Co.
13 14 Studebaker Bros. Mfg. Co.
15 16 Peerless Motor Car Co.
117 Louis M. Grant
116
115
114
224 SQ. FT.
106 Hartford Rubber Works Co.
107 Pittsburg Reduction Co.
108 109 Jackson Automobile Co.
110 Crest Mfg. Co.
111 Chelsea Mfg. Co.
112 113 Conrad Motor Carriage Co.

DIAGRAM OF EXHIBITION SPACES IN THE COLISEUM—THE ANNEX AND PORTION OF THE MAIN FLOOR.

CHICAGO, Feb. 9.—The show management was busy during the closing days of last week attending to the final details of getting ready for the opening. Special requests were sent to the City Hall, asking for the removal of the four-foot banks of snow that remain as an evidence of the blizzard that swept the city on Tuesday and Wednesday. But another heavy snowfall began Saturday and continued throughout the night, adding another half-foot of the beautiful to the six inches that already lay on the level. Permits for electrical wiring were also applied for. The Coliseum is at present used as a roller skating rink, and admission of the carpenters and decorators for the show will not be granted until the latter part of this

week, except in the annex. The smooth, hard floor of the main hall will afford excellent aisles that will lend an appearance of finish to the show.

While the Chicago show will be to a large extent a repetition of the New York show, owing to the fact that a whole train load of the exhibits from the latter are on their way here from Madison Square Garden, there will nevertheless be a fair representation of Western concerns which did not make displays in the East; and this Western tone will be the more accentuated by the absence of many Eastern manufacturers and agents who did not deem it advisable to make any effort through the Coliseum show to extend their trade into Western territory. Accompanying this are two lists, showing those concerns and individuals that had exhibits at Madison Square Garden, but will not have displays at the Coliseum, and those that have engaged space at the Coliseum, but were not represented in New York. There are several new names in the latter and the interest of those who attended the Madison Square exhibition. will, of course, be engaged first by them. Some are experimenters or builders on a small scale now for the first time publicly displaying their products.

Chicago is notorious in the trade as a center for experimenters in motors and complete vehicles. One who is engaged in the supply trade asserts that he knows of not less than 450 persons who are engaged in the building or assembling of single machines. The city is also a good retail place and the growth of the sales houses has been rapid, the largest and best now occupying new buildings especially erected for them on Michigan Avenue at 14th Street. These include the Locomobile and Winton stores; that of Pardee & Co., distributers for the Packard and Baker; of the Ralph Temple & Austrian Co., Western agents for the line of French machines imported by Smith & Mabley, of New York, and of the Toledo. Waverley, Rambler and Franklin; and the store of the Githens Bros. Co., agents for the Oldsmobile. North of the Locomobile store is the newly erected headquarters of the recently organized Cadillac Co., of Illinois, agents for the Cadillac-Stearns gasoline cars and the National electrics. An opening of this store is to be held on Tuesday of this week, when it is expected that the sample machines will have been received. The store is a one-story brick building, 25 by 144 feet, the entire front portion of which is of glass and the rear interior is lighted by nine skylights and five small windows on the north side. At the rear is a repair shop 28 by 68 feet. R. Harry Croninger, one of the most energetic members of the Chicago Automobile Club, is manager.

The Chicago trade just now is in a state of quiesence awaiting the show opening.

(*For List of Exhibitors see page 214.*)

## Commercial Vehicle Trials.

(*Continued from page 203.*)

Mr. Butler, in answer to a question in regard to the possible doubts that manufacturers might entertain of the club's competency to try out business vehicles in a practically convincing manner. "The conditions of the trials are being formulated and will naturally be placed before all contestants before entries are made. Nobody is asked to compete in the test unless he approves of it in all respects."

Some reluctancy in dwelling upon the question of competency was displayed by Secretary Butler, and from this attitude it was inferred that the position of the executive committee of the N. A. A. M. had actually been influenced by the assumption that the Automobile Club might prove less capable at the apportionment of blue ribbons and merit marks to business vehicles than desirable from a business standpoint.

This was apparently a sore point upon which no insistence could be made. On the other hand, the perfect freedom from business bias claimed by the club in comparison with the industrial organization, was emphasized in a parting remark: "There is more in this opposition by the N. A. A. M. than appears on the surface, and it will all come out in the end. For the present you must draw your own conclusions."

The National Association of Automobile Manufacturers has officially nothing to add to its resolution. It speaks for itself. S. T. Davis, Jr., who was president of the association until the evening when the resolution was passed, refused to be quoted. M. J. Budlong, the new-elected president, had little to do with the agitation which led up to the resolution, and was not at the association office during the early part of this week. Secretary Unwin left for the automobile and good roads conventions in Detroit and Chicago last week. Through the subtle instrumentality of an unauthorized, but genial mouthpiece, the impression was conveyed, however that the executive committee of the association was heartily in favor of public trials with commercial vehicles, but thought the time set for a contest by the club was too much in advance of the industry. They thought that very few heavy commercial automobiles were being actually manufactured at present, and that any blue ribbons that might be hung around the smokestack of one or more of such vehicles as would be ready in the spring, would be likely to mislead, rather than assist, the public in a choice, considering that many other commercial vehicles were under way, but could not be ready for the proposed contest, and that in all likelihood very many important changes would be made in even the best commercial automobiles of to-day, before they would be acceptable for general use.

If there was any distrust in the capability of the club for holding a contest in the proper manner, provided the conditions were ripe for making a creditable showing, it was not apparent in the remarks made by the unofficial mouthpiece.

By comparison with the list of supporters of the contest mentioned at the club, the roster of association members who voted for the resolution of disapproval, seems to bespeak a subsequent revision of opinions, as it includes the representatives of several firms claimed by the club as favoring the trials. These members who were present at the meeting, in person or by proxy, were as follows: The Woods Motor Vehicle Company, by J. Wesley Allison; Ward Leonard Electric Company, by H. Ward Leonard; Locomobile Company of America, by S. T. Davis, Jr.; Packard Motor Car Company, by George B. Adams; Winton Motor Carriage Company, by Percy Owen; Vehicle Equipment Company, by Lucius T. Gibbs; Duryea Power Company, by C. E. Duryea; White Sewing Machine Company, by W. T. White; Mobile Company of America, by John Brisben Walker; J. Stevens Arms & Tool Company, by I. H. Page; Electric Vehicle Company, by M. J. Budlong; Geo. N. Pierce Company, by Charles Clifton, and the Studebaker Bros. Mfg. Company ,by J. P. Taylor.

At the same meeting of the executive committee of the N. A. A. M. another contest project was approved and referred to the technical committee. This was the hill-climbing contest recommended by the plenary association meeting, held in connection with the Garden show, and planned to be held on Amsterdam Avenue in New York City over the Fort George hill.

## LAKEWOOD RUN ABANDONED—PHILADELPHIA CHOSEN IN ITS PLACE.

The Automobile Club of America has decided to abandon the proposed run to Lakewood on February 21, and to fix the rendezvous at Philadelphia. The roads between Old Bridge and Lakewood, some thirty-five miles in all, while fairly good in cold weather, would be impassable in the event of a thaw, such as is quite possible at this season. The club will run from New York to Philadelphia on Saturday, meeting at the Bellevue Hotel for dinner at 8 P. M. On Sunday runs will be made in the vicinity of the city, and on Monday there will be a paced run to New York.

The route suggested for the informal run of Saturday is by Twenty-third Street Ferry, from New York to Jersey City, Hudson County Boulevard to Bergen Point, ferry to Staten Island, Port Richmond to Tottenville, ferry to Perth Amboy, thence through New Brunswick, Trenton, Bordentown, Burlington, Beverly, Riverside and Camden, with ferry to Philadelphia—93 miles.

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SATURDAY, FEBRUARY 14, 1903.

THE WESTERN SHOW.

With some local variations the display of new automobiles and automobile appurtenances which was placed before visitors at the New York show, is now spread under the eyes of another community, and is being judged by another public. A half dozen Western manufacturers of complete automobiles whose absence from the New York event was deprecated, are exhibiting their product in the Coliseum in Chicago, and a score of their Eastern colleagues, satisfied with the results obtained at the Madison Square Garden, are refraining from further effort. But outwardly the two exhibitions are of the same size and of the same character, though running a little more to parts and accessories in Chicago and a little more to complete vehicles in New York. Being held only a few weeks apart the two shows could not have been expected to offer wide variations in construction, unless it were assumed that the automobilism of the West differed radically from that in the Eastern States, and that some means of separation existed preventing the two developments from commingling.

Perhaps it is the main point of interest about the Chicago show—aside from trade and local importance—that it really to some extent supports this apparently absurd assumption of some sort of separating wall between the East and the West in automobile matters. The essential likeness between the displays was a foregone conclusion, but just for this reason the minor points of variation are clothed with a significance out of proportion to the numerical showing.

Before the report of the Chicago show shall have been rendered in detail it may be impossible to point out convincingly what is the true import of the variations referred to. At this moment they appear absorbed in the one remarkable fact that the automobile has become so deeply identified with American civilization that an inland town can support an exhibition as large and varied as that held in the chief seaport connecting with Europe, and can draw the bulk of its exhibitors from an area of smaller radius than formed the supporting territory for the New York show. While the center of automobile trade is undoubtedly in the East, owing to the greater density and wealth of the population, the center of the industry has been steadily moving westward. The East spends freely and produces cautiously. The West boldly throws its energy into production and in thus going ahead of its nearest example it necessarily imprints the stamp of its own conception of automobilism on its product. Western-made automobiles are more directly the upshot of original ideas with their builders than those built by Eastern men and corporations.

As far as may be seen now the Chicago show this year is the battle ground where the question of popular preference for two distinct modes of procedure in automobile building will be fought to a finish—or to a compromise. If the agents and dealers who will flock to Chicago decide that the automobile developed from the racing machine, and largely from European experience accepted on faith, is on the whole preferable to the machine developed with main reference to efficiency at comparatively slow speed and low cost by mass production, it will be impossible to overrate the far-reaching influence which the show will exert upon our industry at large. But if, on the other hand, the variations in construction which meet with favor in the East only by reason of their price, continue to be approved by the majority of even the wealthier Western buyers, there seems reason to believe that the utilitarian and anti-sport spirit which governs the automobile movement in the West may prevail in wider circles.

A VICIOUS LAW.

The Higginson Automobile bill, the full text of which was published in our last issue, is evidence that the motorphobes of Boston are getting "wise." Possibly they have been taught by the discouraging experience of their brethren in other States, whose best-drawn legal schemes the automobilists have all too frequently found ways to evade. Perhaps they have merely determined to atone for past indulgence by a double measure of severity. At all events, to a layman's eye, the proposed law appears both drastic and easy to enforce; and if it should be passed it would give automobilism in the Bay State a setback from which it would take it years to recover.

To require all automobilists and their machines to be licensed, to refuse licenses to machines capable of exceeding a fixed speed (in this case 20 miles per hour), to suspend or revoke the operator's license for any infraction of the speed limits, and to punish by heavy fines or imprisonment any use of an automobile without a license, affords a means of control almost autocratic in its simplicity and effectiveness. All that is further required is to equip a few policemen in each town with stop watches and a measured course on the most traveled road. The inauguration of the system would be quickly followed by the disappearance from Massachusetts of most gasoline and all steam pleasure vehicles. Only the electric vehicles, the trucks and 'buses and the gasoline runabouts would remain. If held constitutional, the law would give no loophole.

Outrageous as such a law must seem to every one conversant with automobiles, it would be a mistake to oppose it simply because it is enforceable. There is crying need of an enforceable law; but it should be a reasonable law as well, protecting the public without oppressing the motorist. The fault of the Higginson bill is mainly that it makes an arbitrary speed, and a low one at that, the test of a vehicle's obnoxiousness. There are (*pace* Wayne MacVeagh) many occasions when a vehicle may be driven at double the speed prescribed in this bill as the maximum, without annoying or endangering any one, and the right to do this under proper conditions ought not to be denied to the careful driver. At the same time, the careless driver should not be made to feel that he does his whole duty when he refrains from exceeding the speed limit.

What we need is not so much speed limits, high or low, as an effective application of the common law of the road. Until the latter idea is substituted for the former, abuses both in speed and in reckless driving will continue. Nevertheless, if speed limits there must be—and no doubt they must be accepted for the present—they should at least be suggested by sound, common sense, and it behooves the Bay State motorists to sink their differences and fight for the general good.

QUICK REVERSAL.

The use of the reverse lever is chiefly confined to two occasions. Most common, of course, is the "backing and filling" in the storage station or in a narrow road, when one wishes to get into or out of cramped quarters among stationary objects, and can take his time. The other

class of situations, less frequent but much more embarrassing, arises from the unexpected backing up of another vehicle just ahead, and may occur either in a "block" in a crowded street, or when many vehicles are lined up along the curb. In these cases one has usually to back in a hurry or see his lamps or cooler smashed. For such an emergency the reverse cannot be too quickly operated, and it is one of the drawbacks, perhaps the principal one, of the sliding gear system that with it reversal can never be effected in a single movement. When, as in some of the most costly foreign machines, the selective system of operation is used, with one lever working in two or more slots for forward motion, the acme of undesirability is reached by having an additional and separate slot, protected by a latch for the reverse. At least three motions are necessary, and if the car is standing with the clutch out and the brakes locked four or five may be required before the vehicle is in backward movement. Practically, it is never safe with such a machine to get at all close to the vehicle in front, and the disadvantage of such a requirement is obvious.

Of course the sliding gear system is not going to be abandoned on that account, but there is certainly a great choice between ways of applying the reverse, and the point deserves more attention than it is apt to get.

### Chicago A. C. Election.

CHICAGO, Feb. 7.—At the last meeting of the Chicago A. C. President Palmer's resignation was accepted without discussion, and by a unanimous vote. After this business nominations for his successor were made, the candidates being Charles W. Gray, treasurer of the Inter-Ocean Publishing Co.; ex-President F. C. Donald, Dr. F. C. Green, and John Farson. Mr. Donald declined to accept the office a second time, but in spite of his protest a number of those present insisted on voting for him. The result of the first ballot was: Gray, 12 votes; Donald, 10, and Dr. Green, 3. Dr. Green withdrew his name. Mr. Donald again declined to allow his name to be considered, but was again overruled by a number of those present, and the second vote resulted in the election of Mr. Gray by a majority of one vote.

Mr. Gray has been a member of the Board of Directors for some time, and is an exceedingly popular and capable man.

A reception committee of twelve members has been selected by the Chicago A. C. to act during the week at the Coliseum and club rooms, and the rooms at the Coliseum will be handsomely fitted up. Arrangements will be perfected for the smoker already planned, and doubtless some sort of entertainment will be planned for the clubhouse as well.

A committee of three has been appointed by President Gray to co-operate with the Good Roads Committee of the N. A. A. M., and they will undertake to attend to the work of making the mass meeting at the Auditorium on Friday evening, February 20, an immense success. The chairman of this committee is W. H. Sercomb, and his associates are H. H. Gross and J. B. Burdette.

### MILTON L. BUDLONG IS ELECTED PRESIDENT OF THE N. A. A. M.

The annual meeting of the National Association of Automobile Manufacturers was held on February 4 in New York, the following officers being elected: President, Milton L. Budlong; Vice-Presidents, H. Ward Leonard, New York; Windsor T. White, Cleveland, and Charles Clifton, Buffalo. Percy Owen was re-elected treasurer and the re-election of Harry Unwin as secretary by the Executive Committee on January 7 was ratified.

There had been some discussion of the propriety of electing a Western rather than an Eastern man as president, and Mr. White's name has been mentioned, but the final sentiment of the committee was in the other direction.

Mr. Budlong is well known in the trade as the vice-president of the Electric Vehicle Co., of Hartford, and is a young man only 30 years old. The question of a public test of vehicles on Fort George Hill, as proposed at the recent general meeting, was referred to the Technical Committee, which will endeavor to obtain the consent of the city authorities. A general meeting of the association will be held in New York on March 18 for the revision of the constitution and by-laws.

### London Automobile Show.

The Automobile Show at the Crystal Palace, London, opened on January 30 with a display of over 600 cars on the floor, while over a hundred more were running in the grounds about the Palace, by way of demonstration. America was represented by the Winton, Duryea, White, Locomobile, Grout (Weston) and the noted Baker electric torpedo.

The exhibit includes the latest products of the British and continental works, and far exceeds all previous shows, but the opening received no official notice from the Government, and a comparatively small crowd of spectators was present, with very few ladies. Some two hundred makers and dealers are represented, and from a business standpoint the show promises to be most successful.

### Automobile Aids Progressive Dining.

NEW HAVEN. Feb. 7.—One of the latest uses for the automobile is to make it a feature of a progressive dinner. This was done here recently with much success by Mr. Jerome Kennedy, who is an enthusiastic automobilist.

Fifteen New Haven people took part in the dinner. The first course, soup, was taken at the home of Mrs. C. A. Bradley; fish was taken, after a brief walk, at the residence of Mrs. J. L. Buckingham; the roast and many delicacies followed at Louis C. Cowles' villa on Chapel Street, and there were favors, and more things to eat, at the home of F. A. Pickering. At this house Mr. Kennedy met the party in his motor car, a large vehicle, and speedily transported all to his residence, where songs and games and all sorts of refreshments helped to round out the evening. It took four hours to eat the dinner, and the automobile feature of it was regarded as a novel and very successful one.

### Gasoline Cars on Street Railways.

Street railway cars of the conventional "trolley car" type, but each driven independently by a gasoline motor, are planned for a new street railway service in Harvey, a town not far from Chicago. Under the franchise recently granted, the company must sell tickets at the rate of forty for $1, or but 2 1-2 cents a ride; but it is figuring on a larger profit at this rate than is realized by the electric railways at a 5-cent fare.

Each of the new cars will be equipped with two gasoline motors of 50-horse power, one alone being ample for propulsion under normal conditions. A friction drive will be employed. Cars are now under construction by the Chicago Motor Vehicle Co. at Harvey.

### Life of Edison Battery.

The point was frequently raised by interested investigators at the Edison Company's stand at the late show, that the sheet steel of which the cells and grids were composed would rust in the caustic potash solution. Inquiry on this point resulted in the information from the exhibitor that the steel, after being nickel-plated, was treated by a special process rendering it rust proof, and it was claimed that no difficulty whatever was experienced on this score. On this point it is worth remembering that iron or steel will not rust except in the presence of carbon dioxide, which gas is commonly absorbed in small quantities by water. As caustic potash unites with carbon dioxide to form potasic carbonate and water, the cells in question are sealed air tight except for a gas vent opening outward. This precaution, necessary for the protection of the caustic potash, may very well explain why the iron parts do not get a chance to rust. The carbon dioxide does not get into the solution in the first place, and if it does get past the gas vent it at once unites with the caustic potash and no longer exists as carbon dioxide.

The M. W. Gale Electrical Co. is building a storage and repair house for automobiles at Center and Gregson Streets in New Haven.

# DOORS CLOSE ON A SUCCESSFUL SHOW.

## CLEVELAND EXPOSITION ENDS.

**In Spite of Unfavorable Weather There Was an Average Attendance of About 3,000 Persons—Actual Sales Not Very Large But Much Interest Created in the Power Vehicle.**

*Special Correspondence.*

CLEVELAND, Feb. 7.—The Cleveland Automobile Show closed this evening. The first two days of the week were in a measure disappointing in many ways, but the other four days made up for all that. Although the exhibition was not as large as it might have been, all the spaces were well filled, and it must be pronounced a decided success. There was some decidedly bad weather to contend with, but this did not seem to have much effect upon the attendance. In fact, it may have increased, as some people were kept away from other business and they spent their time at the show.

The attendance was even larger than was expected by the management. It averaged about 3,000 per day, and perhaps the past two days were the best of all. This would make an aggregate of 20,000 for the week. This is considered good for Cleveland, since most of the visitors were Cleveland people and of the best class. It can be said that a very large number of them are interested in automobiles, and if they are not ready just now, they are possible buyers for the future. So, even where the visits did not result in sales, the people have received an impetus to their enthusiasm that will yield a profit to the dealers and manufacturers later on. Nearly all the companies exhibiting here either have branches or agencies in the city, so that those who have become interested in certain machines may make their purchases at any time they see fit.

### ACTIVITY IN ACCESSORY BUSINESS.

There was just as much activity in the accessory business. All those exhibiting this class of goods report great interest on the part of the visitors, and, while the business that results may be less in volume, it will prove of great advantage in the future distribution of material.

The exhibit of the Cleveland Automobile & Supply Co., whose display was considered large in the first place, was greatly augmented on Tuesday by the arrival of several other machines, including an Orient buckboard. A châssis of the Locomobile gasoline touring car was also shown and attracted much attention. The line included several vehicles each of the Locomobile, Studebaker, Cadillac, Columbia and Waverley. In the small spaces used the company showed parts and supplies of various kinds. This was one of the largest displays on the floor, and is evidence that the company has prepared for a very large business the coming season.

H. B. Wick & Co., of Youngstown, Ohio, got their huge 28-horse power touring car in place Tuesday. On account of its size and the beauty of finish, this car was the center of attraction the greater part of the time. Its power is furnished by a vertical four-cylinder gasoline engine placed under the hood. It has the slip-gear system of transmission, similar in form to the Mercedes Simplex. There are three speeds forward and one reverse. The entire gear system is operated by one lever at the right of the driver. An emergency brake operates on each rear wheel and an ordinary brake on the cross shaft. The engine has the Macon hammer ignition. The gasoline tank is in front and the water tank under the front seat. Nineteen gallons of gasoline may be carried when desired. The body of the car is aluminum and was built by J. M. Quinby & Co., Newark, N. J. It is a six-passenger vehicle, with a rated speed of forty miles per hour.

Frank P. Illsley, of Chicago, had two handsomely finished vehicles of the Autocar Co. at the show. The display was late in getting in, but was very attractive. A 12-horse power touring car and a 12-horse power stanhope, both in maroon, with dark striping, made up the exhibit. The gear system was shown in a case by itself. Mr. Illsley will establish either a branch house or an agency in Cleveland. He was present at the show and made the acquaintance of many Cleveland people.

Warwick & Bissell, of this city, had a display of the E. R. Thomas cars, consisting of a touring car and a motorcycle. The Thomas vehicle has a sliding gear system, similar to the Panhard. Owing to the attention attracted by this vehicle the agents believe that it will meet with a very hearty reception among users of automobiles and they are arranging for an extensive business.

The Sherwin-Williams Paint Co. had on display samples of all its goods used in the automobile industry. The aluminum paint used on the metal parts was given the greatest prominence.

### CHASSIS SHOWN OVER MIRROR.

The Rogers & Thatcher Co., of this city, did not get their car entirely completed in time for the show, but they exhibited the châssis over a huge plate glass mirror in the space taken by them. It is a touring car of 35-horse power, with a four-cycle gasoline engine. The motor is just in front of the front seat and under the floor. The gasoline and water tank, combined in one case, is placed under the hood. Twenty gallons of gasoline can be carried. This is a chainless machine, with a toggle shaft direct drive on the high speed. It has two speeds forward and reverse. The dry-battery ignition is used. George D. Rogers is the inventor of the machine. It has a combination body and will carry either two or four passengers. Even one of the front seats may be removed and it can be used for a racing car. The cut shows the original machine, with the tonneau detached. The body had not been finished and striped, but it will serve to show the general outlines of the machine.

Thomas B. Jeffrey & Co. showed a runabout and the Kirk Manufacturing Co. a handsome touring car, both being a part of the display of the Geneva Automobile Co., by whose local branch they are handled. Both have been illustrated in past issues of this publication.

Gray & Davis had a fine display of their automobile and carriage lamps.

### LUNCHEON AT THE ARMORY.

The managers of the show tendered a luncheon and reception to the exhibitors and invited guests in the banquet room of the Grays Armory Thursday evening. The following were among those present: Alexander Winton, Leo Melaniski, L. H. Kittridge, R. A. Koppes, Frank W. Roche, D. J. Post, W. F. Sale, C. B. Shanks, Geo. Collister, H. P. Shupe, Will S. Gilbert, C. A. Scott, C. A. Wardle, R. H. Magoon, V. M. Gunderson, J. D. Maxwell, D. E. Foote, S. G. Rigdon, Coxey Cook, Fred Hitzmann, Chas. W. Rush, T. A. Bragg, Jose Belin, Fred I. Tone, H. B. Anderson, C. E. Munroe, Chas. E. Weaver, Harry S. Moore, Geo. S. Davis, C. H. Davis, M. J. Lambe, Nat. Currier, F. E. Vaery, R. R. Owen, E. M. Knowles, O. C. Owen, B. A. Becker, I. F. Newcomer, J. G. Slemhaupt, R. E. Warwick, George Bissell, C. A. Opperman, E. W. Nicholson, A. R. Schneider, O. S. Tweede, T. E. Taylor, L. P. Mooers, J. A. Sanderson, H. H. Schleman, D. W. Janes, Henry W. Stoer, L. Van Dellen, J. P. Shupe, M. L. Goss, A. J. Weil, Walter C. Baker, W. E. Pirrong, Walter Wardrop, J. S. Draper, W. P. Culver, J. B. Cavanaugh, H. C. Tillotson, Thos. E. Decert, J. A. Carter, G. G. Glass, A. L. Becker, J. F. Dickson, W. E. Stone, C. E. Taylor, C. H. Beecher, Fred Dickens, R. J. Coulter, P. H. Goodall, H. C. Samson, W. R. Armstrong, B. O. Gamble, J. H. O'Brian, P. L. Husser, E. E. Schwarzkopf, T. C. Collings, H. W. Walton, G. Frank Fries, W. W. Lovell, M. H. Moffett, E. J. Climo, P. H. Dorn, T. M. Dunham, Louis Mueller, A. O. Thacher, G. D. Rogers, Jas. Marshall, O. P. Shupe, E. E. Kirk, N. A. Quilling, E. G. Biddle, George H. Brown, William Ritter, W. A. Crawford, W. M. Wright.

## Buffalo Automobile Show.

BUFFALO, N. Y., February 6.—An automobile show is to be held in Buffalo from March 9 to 14, inclusive, and it will be second only to the Madison Square and Chicago exhibitions. It will be held under the auspices of the Buffalo Automobile and Sportsmen's Show. W. C. Jaynes, of the Jaynes Automobile Co., of this city, is very active in its promotion. Mr. Jaynes says that the show will be

held in Convention Hall here and that nearly all of the space has been sold; that the best types of American and French machines will be on exhibition and that the show is open to all manufacturers and agents, also to makers of automobile parts. The hall in which the show is to be held is a large one and there will be ample space to make tests of machines. The Buffalo makers are especially enthusiastic over the coming show and are supporting it heartily.

The recent action of Judge John R. Hazel, in the United States Circuit Court here, in issuing an injunction restrainng the Buffalo Electric Storage Battery Co. from using the Porter batteries, has been sustained by the United States Circuit Court of Appeals.

An order has been granted authorizing the receiver of the Buffalo Spring and Gear Company, which recently went into voluntary dissolution, to turn over the goods of the defunct company to the Railway Steel Spring Company.

The motorists of Philadelphia are busy complying with the requirements of the new ordinance which became a law on December 26 last. On one day of last week 62 applications for license were filed with the Bureau of Boiler Inspection. The new official numbers are on metal signs, of blue enamel, seven inches long and four inches high. The work of inspecting the machines has not yet been begun.

## RIVAL FACTIONS PROMOTE AUTO SHOWS IN BOSTON.

### ADVERTISE DIFFERENT DATES.

**Members of Mass. Auto. Club Form New England Automobile Association in Opposition to the Boston Automobile Dealers Assoc. — Former Sets Date for Feb. 24-28 and Latter Mar. 16-21.**

BOSTON, Feb. 9.—The rival factions of automobilists in Boston showed their hands for the first time at the end of the week just closed, each faction coming out with public advertisement of its proposed automobile show. The New England Automobile Association, the new organization now forming through the leadership of prominent members of the Massachusetts Automobile Club, planned to spring its first advertisement for the show of February 24-28 in the Sunday morning papers; but the Boston Automobile Dealers' Association, finding this out, had a committee meeting Friday afternoon and ordered a large square of space in the Saturday evening papers that devote space to automobiles, advertising their show of March 16-21 as the "official" automobile show. News of this plan returned to the association, and before the Saturday evening papers had closed their columns the association show "ad" was also prominently placed therein.

There is nothing to warrant the distinctive term "official" for the dealers' show, except that it was the first one to be planned, and as such might claim to be the "Boston" show. Then, again, the dealers are expected to have the most elaborate showing of vehicles, as all of them will exhibit in the March show, but many will keep out of that in February. Several dealers came out in the dailies which devote space to automobiles Saturday and Sunday with "ads" announcing that they would exhibit at the dealers' show, specifying it by name. One point about the association exhibition is that it will have the main hall of Mechanics' Building in the same week and at the same time that the Exhibition Hall of the same building is being used for the New England Kennel Club show, and whether the crowds which go to see the dogs will add to the attendance in the automobile wing of the building, is a question that is attracting some attention in places where the rival shows are matters of conversation.

The New England Association has made its appearance at the State House, for its name appears on one of the bills actually drawn up through the initiative of the Massachusetts Automobile Club, as outlined in this correspondence on February 7. Every effort through the wide circulation of printed matter and stationery is being made, also, to boom the membership of the new organization up to the 1,000 mark, which has been set as the limit. A $5 membership fee is

ROGERS & THATCHER 35-HORSE POWER TOURING CAR AT THE CLEVELAND SHOW.

charged, and this includes a season ticket to the association's forthcoming show, the different activities of the association being thus played in favor of one another.

Local opinion as to the new association appears to be somewhat sceptical regarding its success, but there appears to be an idea that while it will do no harm, it may carry out its present plans at least in part successfully, and that in any event the increased interest and activity suddenly developed in the Boston automobile field by the presence of the rival factions will be bound in the end to have an awakening effect on both trade and club progress.

The New England Automobile Association officers elected late last week are: President, Colonel James T. Soutter, of Boston (also president of the Massachusetts Automobile Club); vice-presidents, Colonel Elliott C. Lee, of Brookline; Dr. Julian C. Chase, of Pawtucket, R. I. (president of the American Automobile Association), and Colonel William J. Hoyt, of Manchester, N. H.; treasurer, J. A. Tirrell, of Boston, a lawyer in the office of Mr. Bordman Hall, attorney for the Massachusetts Automobile Club.

## NOTES ON THE AUTO SITUATION AT THE GOLDEN GATE.

*Special Correspondence.*

SAN FRANCISCO, January 31—An automobile dealers' association of San Francisco was organized January 21, and the following officers were elected: E. P. Brinegar, president; C. A. Hawkins, vice-president; J. Brooks Ridley, secretary; Charles E. Linaker, treasurer.

The object of the association is for the improvement of the streets, the passing of such laws as will assist automobilists in touring through the country and good roads.

They have decided to hold an automobile and sportsmen's show some time near the first day of April.

There is a possibility that the California Automobile Club will give a 100-mile endurance run some time during the month of March. This run to start from Oakland in the morning and finish on Third and Market streets the same afternoon. It will be a 100-mile endurance run without a stop. Any automobile stopping for any cause will lose sufficient points to keep it from getting a first-class certificate. Besides the driver each automobile will carry an observer. There will also be judges every twenty-five miles of the road, who will time the carriages as they come through. No carriage will be allowed to run over twelve miles an hour at any time. If this speed is exceeded it will mean a loss of a first-class certificate. E. Courtney Ford has offered a cup for the winner of the contest.

The National Automobile and Manufacturers' Company, now at No. 26 Fremont Street, has closed contracts for the construction of a large repository on Golden Gate Avenue and Jones Street. This repository will be seventy feet front, with one hundred and forty feet depth. The front will be of mission architecture of white cement and red tiling. In the front part of the store there will be a mammoth show room, and in the rear a garage large enough to hold 100 carriages.

## PROPOSED CLUB IN NEW HAVEN—RENEWED EFFORTS OF MOTORISTS.

NEW HAVEN, February 9.—It has long been a matter of regret with motorists in the vicinity of New Haven that there has been no club, and several efforts have been made to establish one, all, however, proving failures.

A new movement is now on foot to accomplish the desired purpose, under the direction of William T. Dill, an energetic broker and business man of this city, who is making strenuous efforts to organize a club in first class working order by the time the season opens.

All of the automobile owners in the city and vicinity are receiving a circular letter from Mr. Dill inviting them to attend a preliminary meeting looking to the organization of a club, and the project has been so warmly indorsed that a successful outcome is confidently predicted.

There is no better country for motoring than that within a radius of 30 miles of New Haven on the principal roads, and it is believed that the formation of a club will do much toward increasing the general interest in the sport here. It is also intended to build a club house and to provide a storage for the cars of the members, and also a general repair shop.

### Damages Against Motorists

SPRINGFIELD, Mass., February 6.—Damages of $225 were awarded in the Superior Court here to-day, before Judge E. B. Maynard, to Jerome L. Pomeroy, of this city, in his action of tort for $5,000 against S. T. Ball, for injuries received through the alleged carelessness and negligence of the defendant in managing an automobile. The accident occurred August 13 last, near the corner of Willow and State streets. The defendant, passing in the rear of a trolley car, collided with the plaintiff, who was riding a bicycle. Pomeroy was thrown to the ground and sustained a scalp wound and several bruises. His wheel was also badly damaged. W. G. McKechnie appeared for the plaintiff, and George A. Bacon for the defendant.

Frank D. Warner, who was riding with the defendant, testified that Mr. Ball stopped his automobile 30 feet from the bicyclist, rang his gong, and half rising from his seat shouted, "Look out." Mr. Pomeroy was watching the trolley car with his head turned when the collision occurred.

## PROSPEROUS CONDITIONS REPORTED FROM FACTORIES IN SYRACUSE.

*Special Correspondence.*

SYRACUSE, N. Y., February 7.—The Century Motor Vehicle Company is now figuring on additional factory space, which will give it three times its present capacity. It has already contracted for over 400 "Tourists," and expects more orders the last of the week. At the New York show, Frederick H. Elliott formed the concern of P. Reynolds Jackson & Co., proprietors of the Century Tourist Car Co. of America, London, England, this company making a contract for 100 cars. Its territory will consist of Great Britain and Ireland. The Century Co. has also made a contract with Banker Bros., of New York, to handle the "Tourist" in that city, Banker Bros. buying a number of cars. Besides New York city they will handle the Century in Pittsburg and Philadelphia. The Century Company has placed orders for new machinery and will have 150 men employed as soon as they can be found.

The H. H. Franklin Company has completed the work of moving into its new factory and things are running smoothly. The plant is one of the finest in the country, and was made especially for the manufacture of motor cars. C. A. Benjamin, sales manager, announced after the New York show that the company had more than sold its output for the coming year. At the factory four machines are being finished for the Chicago show, and Mr. Benjamin will attend the exhibition. The Franklin factory was so built that it can easily be enlarged, and the company owns two acres of land adjoining. The first floor is the assembly room and shipping room. The machines are on the second floor, and there is not a better equipped machine shop in the city. Upon the third floor are the paint shop, body factory and exhibition room. The power house and testing room occupy separate buildings. The fourth floor is devoted to the manufacture of castings. The factory is equipped with electric transmission. In the basement is the washroom. The plant will be turning out three machines a day after February 15. The company's "Poor Richard's Almanac," by Benjamin (C. A.) Franklin (H. H.), is one of the best advertising pamphlets ever issued. Upon the title page it is stated that the almanac is "Published by the Motor Car end of the H. H. Franklin Manufacturing Company. C. A. Benjamin, sales manipulator; John Wilkinson, chief engineer and disciple of air cooling. Other officials and moneyed men incidental only. Agencies everywhere." For every month there is a proverb of Benjamin Franklin's altered to suit C. A. Benjamin.

The Brennan Manufacturing Company has issued a new catalogue of gasoline motors for automobiles and boats. The Brennan motors are four-cycle of moder-

ate compression, great efficiency, and of the latest design. They are of the horizontal type, having opposing cylinders with double throw cranks 180 degrees apart. An improvement on the 1903 motors which will be appreciated is the fact that the top case can be removed without disturbing any of the adjustments, giving full access to the crank case for inspection or adjustment of parts. The crank shaft, rods and pistons can be lifted out if desired. The case is dust-proof and oil tight. There are no joints in the bottom part of the case for the oil to leak out. The company also makes air cooled motors.

### Entertainment for Visitors.

*Special Correspondence.*

CHICAGO, Feb. 7.—The regular monthly meeting of the Chicago Automobile Club will take place next Thursday evening, and owing to the interest being taken in the coming show, it seems likely that it will be a large and most enthusiastic gathering. The only matter of immediate importance to come up, aside from the statement of club plans for the week of the show, is the report of the committee which waited on the judiciary committee of the City Council last Tuesday, relative to the proposed numbering ordinance. This report will state that about twenty members of the club were in attendance to support the stand taken by the committee, which was that of opposition to compulsory sinking of the individual's identity in a mere number. The club's representatives were cordially received by the committee from the Council and the statement was made that the committee seemed more favorable to the club than to the proposed new ordinance, though no intimation was made of what the final recommendation would be. The Council Committee agreed that it would withhold a report on the matter until after the closing of the show, and this slight concession is appreciated.

It may be stated, also, that the Mayor, through the proper channel, has informed the management of the Show that visiting chauffeurs will not be asked to take out licenses, but all those for whom the Show management is willing to stand sponsor may secure license badges, which are to be loaned by the city for this purpose. This is a courtesy which will be greatly appreciated by manufacturers who wish to give street demonstrations, and one which all should take particular pains not to abuse.

The new Automobile Club of Pasadena, Cal., has devised a novel scheme of good roads work. The club members will make runs on Monday, Wednesday and Friday to Pomona and return, carrying passengers for hire and devoting the money to road improvement. It is expected that the novelty of the plan will attract public notice to the motor vehicle and the need of better roads.

## REPRESENTATIVE BROWNLOW TALKS ABOUT GOOD ROADS MOVEMENT.

WASHINGTON, D. C., Feb. 7.—There is no denying the fact that Representative Brownlow's bill providing for a Good Roads Bureau and government, state and municipal co-operation in the construction of roads throughout the country, is one of the most popular bills that has been introduced in the present Congress, and from all parts of the country are coming to its author expressions of sentiment in favor of the bill.

"The idea of the national government taking an active part in the construction of the highways, so popular three-quarters of a century ago, has for several decades been considered obsolete," said Representative Brownlow to THE AUTOMOBILE correspondent. "But the interest manifested in my bill shows that this idea is very much alive. Indeed, the popular interest in the subject is a source of surprise to those who have not been giving the matter attention. This interest is by no means a sudden development, either. It has been growing steadily for a number of years, and especially since automobiles have come into such great favor.

"It is now ten years since the popular demand that the United States do something led to the establishment of an office of public road inquiry in the Department of Agriculture. The work of this office was intended to be purely educational in character. It was to collect and disseminate practical information concerning the roads of the country and means and methods for their improvement. This work has been well done, and if the roads in most parts of the country remain bad, it is not for want of information as to how they may be improved in the best and most economical manner, for the Good Roads office is a veritable bureau of information

"If the educational work done by the government in recent years has done much to encourage and stimulate road improvement, what may we not expect from this great extension of the principal national aid? It is sometimes urged as an objection to national aid that it will cause the people to relax their efforts at road improvement, and to depend on the general government to do the work for them. Is it not likely to produce exactly the opposite results? The large fund which Congress will appropriate for this work will be divided among the states in proportion to population. But no state can secure its share except by complying with the conditions prescribed, the chief of which is that it shall raise a like sum for the same purpose. Instead of discouraging state effort, this should greatly stimulate it. Again, if a state takes no action looking to the acceptance of the government's proffered help, the individual counties may do so, and this again will create a rivalry among the counties in their efforts to secure a part of the national fund due the state."

As Representative Brownlow says, the scheme is far-reaching in its possibilities for economic development. Time and intelligence will be required to work out the details of its application, but there appears to be no serious obstacle, either practical or constitutional, in the way of its realization.

COLISEUM BUILDING—THE SCENE OF THE CHICAGO AUTOMOBILE SHOW.

## WINTON MAY CEASE RACING AFTER INTERNATIONAL CONTESTS.

CLEVELAND, Feb. 7.—It is reported that Alexander Winton will cease racing after the international contest takes place and his match with Fournier has been run. He is said to feel that he has done enough in that line to demonstrate the quality of the machines he is manufacturing and will allow somebody else to take the risk with the sport in the future.

Dealers and managers of branch houses in this city believe that the show has given the business such an impetus that they will have a very much better season than they would have enjoyed otherwise. Not only do they expect to make sales to those who had already been figuring on buying, but they believe that as many more have become interested. There are perhaps 500 machines in use in the city now, but dealers believe they will sell twice that many before the season is over. Machines of such moderate prices are now manufactured that the business is not confined to the wealthier class of people, but those of moderate means will be able to enjoy the convenience of automobiling as well. From present prospects there will be several more branches opened in the city this spring and the more prominent manufacturers who do not see their way clear to opening branches will establish agencies with some of the dealers already in business or will secure entirely new agents to make a specialty of their machines.

The Star Automobile Co. has completed its model and made preparations to go into the manufacture of a handsome tonneau, which will be ready for delivery to customers some time in April. A factory at 184 Kinsman Street has been secured and fitted up with all the latest machinery in the market. In this machine a single horizontal engine will be used, with a planetary transmission encased in oil. The jump-spark ignition system has been adopted, and it has a continuous coil radiator. The tanks are placed under the bonnet. The motor is 8-horse power.

The People's Auto-Transit Co., of Vermillion, has been incorporated with a capital stock of $25,000 for the purpose of establishing automobile lines through the country about that town which are not reached by electric railway. F. B. Whitmore, S. E. Miller, Milo Moulton, J. L. Brown, E. T. Prentice, R. Wortman and R. F. Quigley are the incorporators. One line will extend from Oberlin to Vermillion. It is said that the cars ordered will be made to resemble a street car to some extent in outward appearance. They will be strong and capable of standing the hard work of the roads.

The L. J. Mueller Co., of this city, has made arrangements to handle such a complete line of automobile parts that a machine may be assembled from them at very short notice. Complete bodies will be kept in stock, with all the other parts and accessories. The company has the agency for the Holley motor, which will be used in making up when a machine is desired on short order.

The city authorities made the statement, it is understood, that visiting members of the trade to this city the past week would have to take out licenses for the machines used on the streets or be arrested if without number tags, but it seems they changed their minds, as no arrests took place.

## TIRE TALK FROM AKRON—NOTES OF THE SHOWS AND BUSINESS.

*Special Correspondence.*

AKRON, Feb. 7.—The automobile exhibitions of the season are serving to stimulate tire manufacturers in their efforts to keep up with and as far as possible ahead of the procession in doing their share toward producing the ultimately perfect automobile. The season in nearly all lines of rubber goods is opening very briskly following the slight holiday and winter inventory lull, but in none more so than in the tire departments. The B. F. Goodrich, the Diamond, the Firestone Tire & Rubber, the Goodyear Tire & Rubber and the India Rubber companies are all operating their tire departments overtime.

The Goodyear Tire & Rubber Co. is moving into a large addition recently erected on its premises which will be devoted exclusively to tires. The extensions in this and other departments will give employment to 225 more hands than formerly.

The B. F. Goodrich Co. is also occupying, this month for the first time, a five-story addition, 300 by 150 feet, housing its hose departments, that the tire departments may have more room in the older buildings. The Goodrich Co. also plans to fill a long-felt want in this connection by devoting one floor of the new structure to warehouse purposes. The company has for many months been in need of space in which to carry staple goods in stock, but there is so much business in hand now that the question arises, How will the surplus of staples to fill the warerooms be accumulated?

### TIRE EXHIBITS AT THE SHOWS.

Returning to the subject of the auto shows, however, while it is emphatically true that the tire manufacturers consider the Madison Square exhibition to have been a great success in all respects, they are becoming wary of the shows in general. Such a number have been scheduled, many of them under the auspices of no recognized organization, but rather promoted by private parties, that invitations to be represented are not finding ready responses. A leading manufacturer explained that the great reason for this is the fear of a repetition of the experiences of a few years ago when bicycle shows were being held in almost every county seat boasting a railway station. The shows were promoted by men whose sole purpose was to make money out of them, and whose chief investment was the renting of a hall. Manufacturers of tires were nearly always among the exhibitors. While it is denied that there is even a tacit understanding among the tire manufacturers to remain away from the smaller auto shows, the fact remains that exhibitions must be under recognized auspices to draw the displays from the tire people.

There is still another point that tire manufacturers advance in this connection, and they point to the New York exhibition as bearing out their statement. It is that they cannot make displays which attract attention as do those of other manufactures. They can only show their tires, and the improvements in these, of necessity, are not of such a self-apparent nature as to attract the notice of the average individual, be he ever so deeply interested, and in their respective classes all tires look alike to the casual observer.

### AMERICAN FACTORY IN GERMANY.

Vice-President J. A. Swinehart, of the Colonial Rubber Co., is in Germany to install at the Continental Rubber Co.'s factory at Hanover machinery for the manufacture of the Swinehart cross wire tire. The Colonial Co. has just contracted with the German concern to make the tires on royalty for Germany, Denmark, Norway and Sweden and Holland. With similar contracts made with Vienna and Paris concerns, the Colonial Co. has now covered all of Europe outside of Great Britain, in which it controls the patents, with the exception of Belgium and Russia. A contract to cover the latter country will probably be made soon.

W. L. Wild, who since the reorganization of the India Rubber Co., is local manager of this, the Akron factory of the Rubber Goods Co., is an ardent advocate of solid in preference to pneumatic tires. The India Co. makes pneumatic tires, but is pushing hardest on the solid makes, claiming that they are bound to give the best satisfaction on any motor vehicle, except very light machines. The India Co. has recently made a number of especially heavy tires for steam vehicles for shipment to England. Some of them were valued at more than $500 for the set.

### TIRES FOR THE SHAH'S CAR.

President P. D. Hall, of the Colonial Rubber Co., has a bit of rubber which he values as a curiosity and a memento of his concern's success. It is a section of a solid tire cut from one of a set manufactured expressly by the Colonial Co. for the Shah of Persia, the car being built in France.

Frank Goddard, an Akron young man, who recently obtained patents on a new motor cycle, is at work to perfect the ma-

chine and hopes soon to be able to begin the regular manufacturing. It is said there is ample capital behind his project, but the plans are all immature.

The Stein Double Cushion Tire Co., mention of whose new bicycle wagon tire was made in these columns a few weeks ago, has not yet completed the tests of this new tire to its entire satisfaction. It is expecting, however, to perfect the tire in time for the late spring markets and to push it vigorously the coming summer.

A lull and slight decline in prices in the crude rubber market has been welcomed by rubber manufacturers in general, but by none so much as by the tire manufacturers. So much more rubber enters into a set of auto tires than is required for any other single product that a difference of a few cents a pound cuts a great figure therein. The prediction is made that the quiet market is only temporary; and, stocks on hand being generally short, another rise in quotations may be expected at any time.

### Public Sentiment in Connecticut.

*Special Correspondence.*

NEW LONDON, Conn., February 7.—From the tenor of editorial comment of the Connecticut press upon Representative Warren's proposed bill limiting automobiles to a speed of eight miles on country roads, it is readily gathered that the press of the State is alive to the absolute absurdity of the new measure, and already it is predicted that the bill will be buried by the committee to which it was referred. However the press of the State may ridicule the Warren bill, it must be remembered that the newspapers are printed in the large cities and towns, and against them is arrayed the small town contingent in the Legislature, which has an overwhelming majority, sufficiently powerful to pass any bill above any veto. So the predictions that the slow speed law will never become effective are, to the small towners in the Legislature in particular, rather premature.

It is urged by the press that Connecticut has been very fair to everybody on the automobile speed question; that the law passed at the last session of the Legislature is liberal to the automobilists and at the same time offers sufficient protection to the public. The general public is disposed to be tolerant with the automobile. The feeling of resentment in some quarters is gradually wearing away as more people become owners of machines. All this means increased activity in the manufacturing line, and no body of intelligent legislators will seek to hamper the growth of this industry by enacting laws that will prevent the use of the automobile in this State.

The present law allows a speed of twelve miles in the cities and fifteen miles in the country, and if this law is enforced all excesses can be punished. When it is considered that the automobile is so much more under control than a horse its ability to negotiate higher speed is unquestionable.

## DEALERS' SHOW FOR INDIANAPOLIS IS ABANDONED.

*Special Correspondence.*

INDIANAPOLIS, Feb. 7.—At a second meeting of the Indianapolis Automobile Association, held this week, it was decided to abandon the idea of giving a show this season. The announcement is a great disappointment to the people of the city who are interested in the machines.

There are some differences between the dealers, dating back to the last show, but it was thought that the breach had been healed, and that all would unite in backing this year's show.

The Fisher Automobile Co. has decided, however, to give a show of its own, and the date has been fixed for the first week in April. It will be held at the new garage on Illinois Street.

Among the machines exhibited will be the Oldsmobile, Winton's Bullet, Franklin; F. Huss, of Detroit, with his double-cylinder machine; Frank Joss, with the General, and a full line of Columbias.

A feature of the show which will doubtless attract considerable attention will be the climb, which will start from the street, ascend completely over the building and descend to the street again.

### Grand Rapids Ordinance.

An ordinance has been introduced in Grand Rapids, Mich., providing for the issuing of licenses to drive motor vehicles by the Mayor or Acting Mayor, when in his judgment the applicant is fully qualified. The fee for the license is $3.00, and it is revokable at the will of the Mayor. Provision is made for bell or horn, brakes and lamps. The penalty for violation of the ordinary is a fine of not over $2,500 or imprisonment for not over 30 days.

## List of Chicago Exhibitors Alphabetically Arranged.

American Darracq Automobile Co., New York.
American Gasoline Motor Co., Chicago.
American Motor Carriage Co., Cleveland.
Apperson Bros. Automobile Co., Kokomo, Ind.
American Roller Bearing Co., Boston.
Autocar Co., Ardmore, Pa.
Badger Brass Mfg. Co., Kenosha, Wis.
Baldwin Chain Mfg. Co., Worcester.
Bartholomew Co., Peoria.
Barton Boiler Co., Chicago.
Bowman, S. B., New York.
Brandenberg Bros., Chicago.
Brondes, J. C., New York.
Brecht Automobile Co., St. Louis.
Brennan Mfg. Co., Syracuse.
Briscoe Mfg. Co., Detroit.
Brown-Lipe Gear Co., Syracuse.
Buffalo Electric Vehicle Co., Buffalo.
Cadillac Automobile Co., Detroit.
Centaur Motor Vehicle Co., Warren, Ohio.
Champion Mfg. Co., Brooklyn.
Chelsea Mfg. Co., Chelsea, Mich.
Chicago Motor Cycle Co., Chicago.
Chicago Storage Battery Co., Chicago.
Cleveland Automobile Co., Cleveland.
Cleveland-Canton Spring Co., Cleveland.
Columbus Motor Vehicle Co., Columbus, Ohio.
Conrad Motor Carriage Co., Buffalo.
Crest Mfg. Co., Cambridge, Mass.
Cryder, H. C., Marion, N. J.
Dasey, P. J., Chicago.
Dayton Electrical Mfg. Co., Dayton, Ohio.
Diamond Rubber Co., Akron, Ohio.
Dietz, R. E., Co., New York.
Dixon, Joseph, Crucible Co., Jersey City.
Dow Portable Electric Co., Boston, Mass.
Duryea Power Co., Waterloo, Ind.
Eckhart Carriage Co., Albany, Ind.
Electric Contract Co., New York.
Electric Storage Battery Co., Philadelphia.
Electric Vehicle Co., Hartford.
Elmore Mfg. Co., Clyde, Ohio.
Fanning Mfg. Co., Chicago.
Firestone Tire & Rubber Co., Chicago.
Fisher, Carl, Indianapolis.
Fisk Rubber Co., Chicopee Falls, Mass.
Franklin, H. H., Mfg. Co., Syracuse.
Fredonia Mfg. Co., Youngstown, Ohio.
Friedman Automobile Co., Chicago.
Funke, A. H., New York.
G & J Tire Co., Indianapolis.
General Automobile & Mfg. Co., Cleveland.
Goodrich, B. F., Co., Akron, Ohio.
Goodyear Tire & Rubber Co., Akron, Ohio.
Grant, Louis M., Chicago.
Grey & Davis, Amesbury, Mass.
Hartford Rubber Works Co., Hartford.
Haynes-Apperson Co., Kokomo.
Hoffman Automobile Mfg. Co., Cleveland.
Hoffman Motor Co., Chicago.
Hyatt Roller Bearing Co., Harrison, N. J.
Ilisley, Frank P., Chicago.
Imperial Wheel Works, Flint, Mich.
International Motor Car Co., Toledo.
Jackson Automobile Co., Jackson, Mich.
Jeffery, Thos. B., & Co., Kenosha, Wis.
Johns-Manville Co., New York.
Jones-Corbin Co., Philadelphia.
Kammann Mfg. Co., Chicago.
Kirk Mfg. Co., Toledo.
Knox Automobile Co., Springfield, Mass.
Konigslow, Otto, Cleveland.
Libal, Joseph, Chicago.
Lindsay Automobile Parts Co., Indianapolis.
Locomobile Co. of America, New York.
Lozier Motor Works, Plattsburg, N. Y.
Marble-Swift Auto. Co., Chicago.
Matheson Motor Car Co., Grand Rapids, Mich.
McCanna, John F., Chicago.
Mead Cycle Co., Chicago.
Merkel Mfg. Co., Milwaukee.
Midgeley Mfg. Co., Columbus, Ohio.
Moore, C. J., Mfg. Co., Westfield, Mass.
Motor Development Co., Chicago.
Motsinger Device Mfg. Co., Pendleton, Ind.
Muncie Wheel & Jobbing Co., Muncie, Ind.
National Automobile & Motor Co., Oshkosh, Wis.
National Carbon Co., Cleveland.
National Motor Vehicle Co., Indianapolis.
Northern Mfg. Co., Detroit.
Olds Motor Works, Detroit.
Packard Motor Car Co., Warren, Ohio.
Pardee & Co., Chicago.
Peerless Motor Car Co., Cleveland.
Peterson, Franklin K., Chicago.
Pierce, Geo. N., Co., Buffalo.
Pittsburg Reduction Co., Pittsburg.
Pope-Robinson Co., Hyde Park, Mass.
Porter Storage Battery Co., Chicago.
Prescott Automobile Co., Passaic, N. J.
Racine Boat Mfg. Co., Racine, Wis.
Rose Mfg. Co., Philadelphia.
Russell, G. W., Springfield, Ohio.
Salamandrine Boiler Co., New York.
Sandusky Automobile Co., Sandusky.
Searchmont Automobile Co., Philadelphia.
Shelby Motor Car Co., Shelby, Ohio.
Shelby Steel Tube Co., Pittsburg.
Smith & Mabley, New York.
Speedwell Automobile Co., Milwaukee.
St. Louis Motor Carriage Co., St. Louis.
Standard Anti-Friction Equipment Co., New York.
Standard Carriage Lamp Co., Chicago.
Standard Motor Vehicle Co., Chicago.
Standard Welding Co., Cleveland.
Stearns, F. B., Co., Cleveland.
Stevens, J., Arms & Tool Co., Chicopee Falls, Mass.
Studebaker Bros., South Bend, Ind.
Temple, Ralph, & Austrian Co., Chicago.
Tennant, Irwin, Springfield, Ohio.
Thomas, E. R., Motor Co., Buffalo.
Timken Roller Bearing Co., Canton, Ohio.
Tincher, T. S., Chicago.
Twentieth Century Mfg. Co., New York.
Union Automobile Co., Union City, Ind.
U. S. Long Distance Auto. Co., New York.
Veeder Mfg. Co., Hartford.
Wagner Cycle Co., St. Paul, Minn.
Warner Differential Gear Co., Muncie, Ind.
Waterloo Gasoline Engine Co., Waterloo, Ind.
Western Motor Co., Logansport, Ind.
Western Storage Battery Co., Indianapolis.
Westerfield Motor Co., Anderson, Ind.
Westinghouse Co., Pittsburg.
Whitney Mfg. Co., Hartford.
Wick, H. B., & Co., Youngstown, Ohio.
Willis, E. J., New York.
Winton Motor Carriage Co., Cleveland.
Wisconsin Wheel Works, Racine Junction, Wis.
Woods Motor Vehicle Co., Chicago.

The date of the Laffrey hill trials, under the management of the Automobile Club of Dauphiné, will probably be July 5.

# THE AUTOMOBILE

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